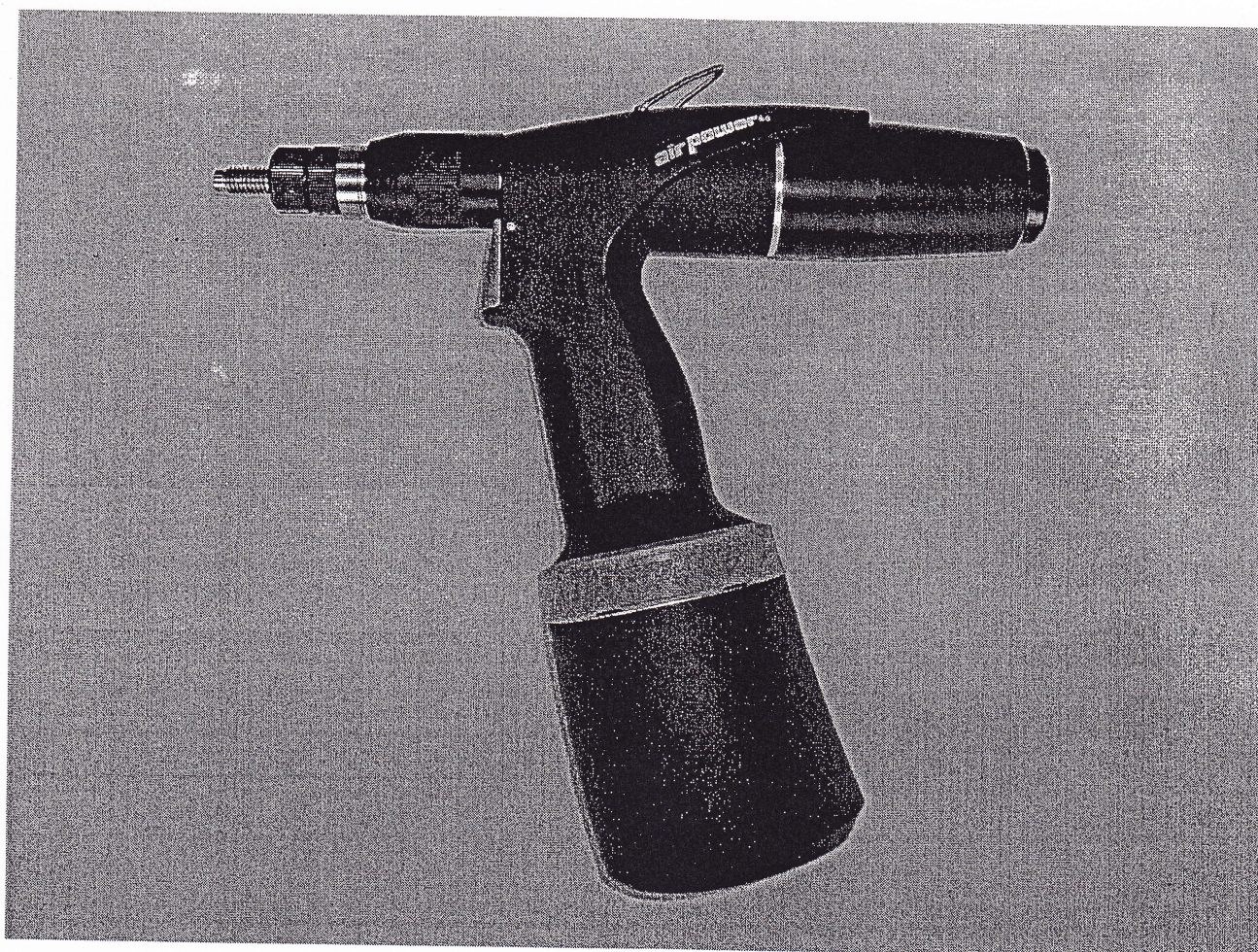


INSTRUCTION MANUAL

AIR - HYDRAULIC RIVETING TOOL

Air Power 4



Production, supply and customer service is provided by:


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1. GENERAL SAFETY INSTRUCTIONS AND POLICY

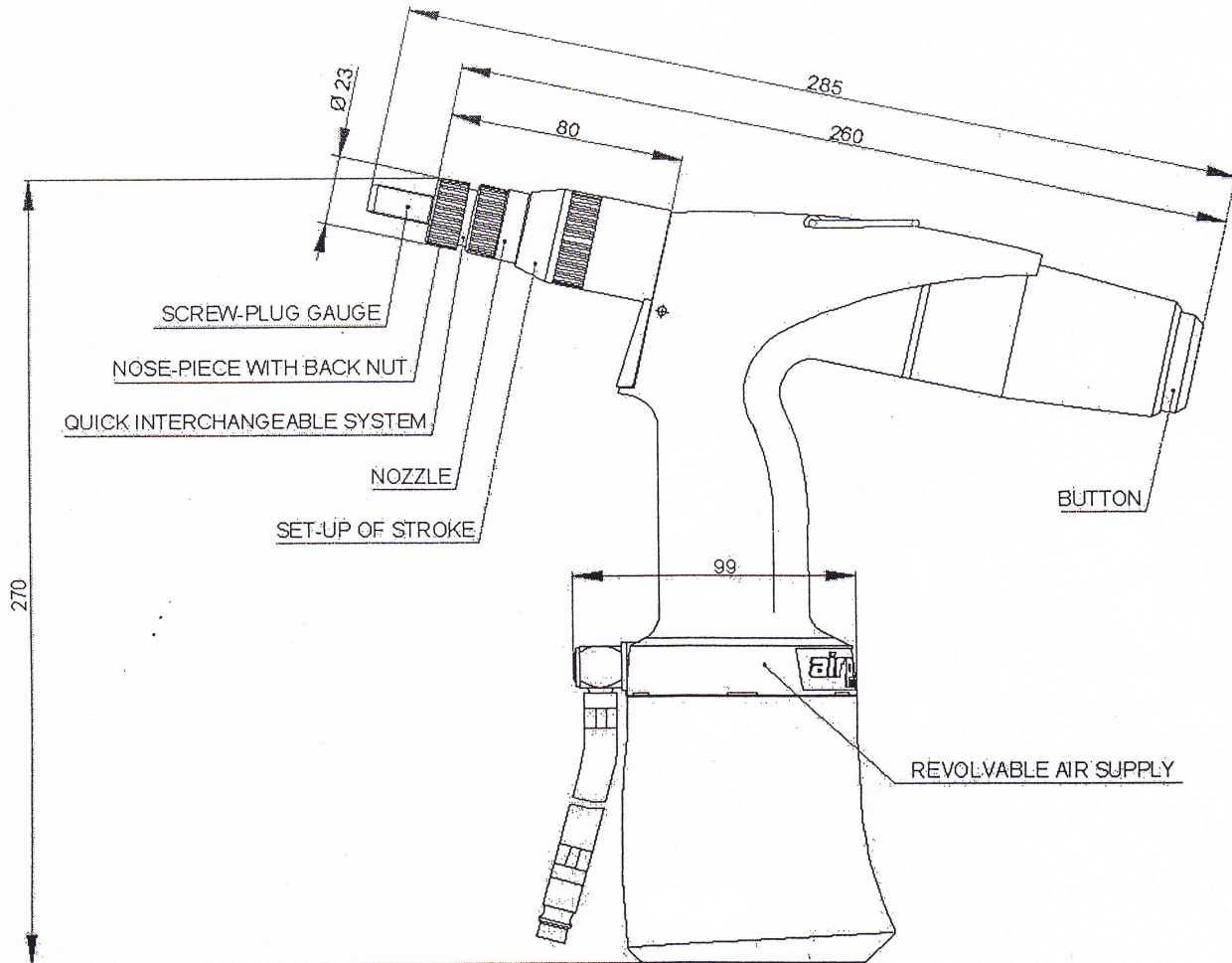


ATTENTION! Read all the instructions carefully. Everyone who will install, operate or maintain the tool must read this manual at first and is obliged to follow these safety instructions:

- The tool may not be used for other than its original purpose.
- The tool must be only operated in a way recommended by the company MS Nářadí s.r.o. (thereinafter MS Nářadí).
- The customer is fully responsible for their own adjustments of the tool, accessories or spare parts supplied by MS Nářadí or its sales representatives. MS Nářadí provides professional help while designing or carrying on further repair work.
- The tool must be maintained in the perfect condition, it has to be checked regularly. The repairs must be carried over by incorporated engineer or by a person trained by the producer or supplier. In case you are interested in the training, please contact MS Nářadí.
- The tool must be operated to conform with sanitary and safety instructions.
- Please, address all your questions about appropriated and safety operation of the tool directly to MS Nářadí.
- Safety instructions must be obeyed by all the workers, who will operate with the tool.
- While manipulating with the tool, be careful not to turn on the tool by accident and avoid the possible injury.
- While maintaining or repairing the tool, it always must be disconnected from the source of pressure air.
- Always stand steadily before and while using the tool.
- Always check the air inlets, if they are not blocked or covered and that the inlet hose is in a good condition.
- Operating pressure must not exceed 0,7 MPa.
- Oxygen or other flammable gases from pressure bottles must not be used as a fuel.
- We strongly recommend wearing eye protection and work-gloves while operating the tool.
- If the continuous operation of the tool is longer than 8 hours a day, we recommend using ear protection.
- The operating staff must not wear loose parts of clothes, such as ties, long hair, jewellery etc., so that the tool cannot catch them.
- The people, who will be near the tool should obey the same safety instructions.
- Avoid all unnecessary contact with hydraulic oil, to obviate possible allergic reaction of the skin.
- The tool is equipped with permanent magnet, the magnetic pole may influence electronic and even some mechanic machines. So it is necessary to warn about the possibility of the influence on the operation of electronic implants (e.g. pacemakers, insulin pumps etc.) with potential fatal effect for the users of these implants. The magnetic pole may also damage information on magnetic appliances (audio and video cassettes, diskettes, credit cards etc.) and it can destroy the forever. While using (and storing) the tool, please, keep distance with these sensitive appliances, in this case 0,5 m is considered as the save distance.
- The tool is not appropriate for the places with explosion risk.
- The tool should be disposed according to the waste act nr.185/01

2. DESCRIPTION OF THE TOOL

2.1. Basic characteristics



pic. 1

2.2. Ratings

Weight.....	1,65 kg
Operating pressure.....	0,5 - 0,7 MPa
Drawbar pull/0,6 MPa.....	18,5 kN
Air consumption.....	1,5 l / stroke
Max. operating stroke	7 mm
Height.....	270 mm
Length	285 mm
Width (angle valve).....	99 mm

2.3. Application

Air-hydraulic riveting tool is intended for riveting:

- nut rivets M3 – M12 (steel)
- screw rivets M4 – M8 (steel)

2.4. Operation of the tool

The tool is equipped with a nose-piece and screw-plug gauge for nut rivet M8. For riveting of rivets with a different dimension it is necessary to exchange the nose-pieces and screw plug gauges and change basic set up and regulation of the tool as following:

- 1) Loosen the back nut of the nose-piece /pic. 1/
- 2) Screw out the nose-piece from the nozzle /pic. 1/
- 3) Screw out the screw-plug gauge from the sleeve
- 4) Choose appropriate nose-piece and screw-plug gauge according to the dimension of the rivet, see the following chart:

Rivet	Nose-piece and screw-plug gauge	Part nr.
M3	Screw-plug gauge for nut rivets M3	D-1400103
	Nose-piece for screw-plug gauge M3	S-1400303
M4	Screw-plug gauge for nut rivets M4	D-1400104
	Nose-piece for screw-plug gauge M4	S-1400304
M5	Screw-plug gauge for nut rivets M5	D-1400105
	Nose-piece for screw-plug gauge M5	S-1400305
M6	Screw-plug gauge for nut rivets M6	D-1400106
	Nose-piece for screw-plug gauge M6	S-1400306
M8	Screw-plug gauge for nut rivets M8	D-1400108
	Nose-piece for screw-plug gauge M8	S-1400308
M10	Screw-plug gauge for nut rivets M10	D-1400110
	Nose-piece for screw-plug gauge M10	S-1400310
M12	Screw-plug gauge for nut rivets M12	D-1400112
	Nose-piece for screw-plug gauge M12	S-1400312

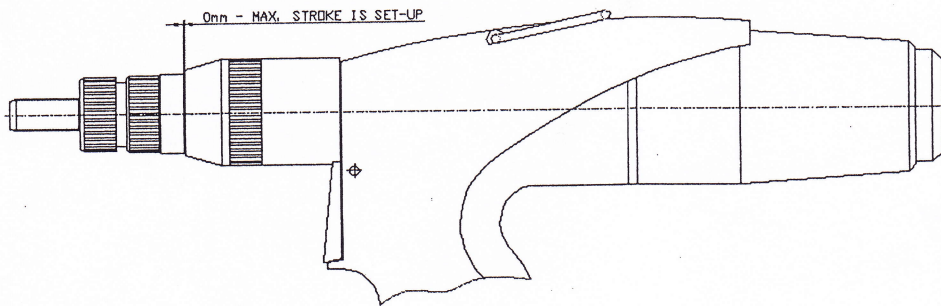
- 5) Screw the screw-plug gauge on to the sleeve (to the backstop) and then turn it back, so that the flats of the hexagons of the screw-plug gauge and sleeve are matching.
- 6) Slide on the nose-piece to the hexagons of the screw-plug gauge and sleeve.
- 7) Screw on the nose-piece to the sleeve
- 8) Set-up the nose-piece:
 - for nut rivet – The nut rivet is to be screwed on the whole length of the thread on the screw-plug gauge and the front of the nut rivet leans on the nose-piece. Fasten the position of the nose-piece with a back nut.
 - for screw rivet - Set-up the nose-piece so that there is a cca 1 cm space between the outer side of the screw rivet and inner side of the nose-piece. Do it as following: Screw on the nose-piece to the backstop to the screw-plug gauge and then screw it back one or two turns. Fasten the position of the nose-piece with a back nut.

9) Set-up the basic stroke as following:

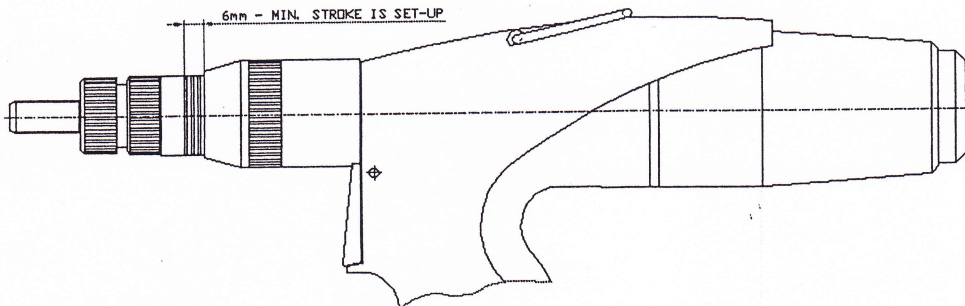
Rivet	M 3	M 4	M 5	M 6	M 8	M10	M12
Stroke (mm)	1,5	2	2,5	3	4	5	6
Number of visible marks on the scale	5	5	4	4	3	2	1

- To set-up the stroke turn the covering sleeve of the nozzle, values of the stroke are indicated between the scale divided into 1 mm values on the body of the nozzle and the edge of the covering sleeve of the nozzle.

- Maximum stroke is set-up, when the first scale line covers the edge of the covering sleeve of the nozzle, see the following picture:



- Minimum stroke is set-up, when the last scale line covers the edge of the covering sleeve of the nozzle, see the following picture:



- 10) Connect the tool to the source of the compressed air and turn the versatile air supply, so that it will not restrain from riveting.
- 11) Put the rivet on the mandrel and push towards the nose-piece, this will screw on the rivet
- 12) Put the screwed rivet into the prepared hole
- 13) Push the trigger and the rivet will clinch
- 14) Relieve the trigger, the screw-plug gauge will screw out from the rivet (if it is not fully screwed out, use the button /pic. 1/)
- 15) Check the clinched rivet
 - if the rivet is not fully fastened it is necessary to increase the stroke
 - if the rivet is too fastened, which results in deformation of the rivet and the rivet is hard to screw out from the screw plug gauge, it is necessary to decrease the stroke
- 16) Check the setting-up of the nose-piece according to the step 8)
- 17) The tool, which is set up a prepared this way is ready for riveting.

3. TOOL MAINTANANCE

For the maintenance of the tool it is necessary to disconnect it from the source of the compressed air !!!

3.1. Daily maintenance

Daily, before the start of working, drop several drops of oil (we recommend hydraulic oil HYSPIIN AWHM 32 CASTROL) to the air inlet of the tool, if the lubricating equipment is not connected to the air distribution. If the tool works continuously, it is necessary to disconnect the air hose from the main air supply and lubricate the tool every 2-3 hours.

Check, if the air does not escape, if yes, the damaged hose or joints must be changed for the new ones.

If the pressure regulator is not equipped with filter, blow-over the air hose, before you connect it to the tool, so that you get rid off water and foreign matters. If the pressure regulator is equipped with a filter, dry it. Check if there is a right nose-piece and screw-plug gauge corresponding to the dimension of the rivet and if the all threads are fastened.

Check, if the holes for the air stream are really free.

3.2. Weekly maintenance

Weekly maintenance means that the worn-out or dysfunctional parts are changed. Dismantle the nose-piece and screw-plug gauge according to the chapter 2.4., 1) and 3). All dismantled parts should be cleaned and visually checked – especially the screw-plug gauges and nose-piece. Dismantled parts should be reinstalled according to the chapter 2.4., 5) to 7) including setting up according to the point 8).

3.3. Overhaul

The overhaul is carried out always after 500 000 strokes or once every three years. The whole tool should be dismantled and all the sealings and worn-out parts must be changed. This must be done by service engineer only or a person specially trained by the producer or supplier.

4. SPARE PARTS

4.1. Order

The spare parts must be ordered at the producer or business partners of the company MS Nářadí.

The order must contain:

- a) serial number of the tool
- b) number of the spare part
- c) number of pieces
- d) name and address of your company
- e) your tax number

You can use the following address to order the spare parts: obchod@msnaradi.cz

4.2. List of the parts with easy wearability

Name	Spare part nr.
Screw-plug gauge for nut rivets M3	D-1400103
Screw-plug gauge for nut rivets M4	D-1400104
Screw-plug gauge for nut rivets M5	D-1400105
Screw-plug gauge for nut rivets M6	D-1400106
Screw-plug gauge for nut rivets M8	D-1400108
Screw-plug gauge for nut rivets M10	D-1400110
Screw-plug gauge for nut rivets M12	D-1400112
Nose-piece for screw-plug gauge M3	S-1400303
Nose-piece for screw-plug gauge M4	S-1400304
Nose-piece for screw-plug gauge M5	S-1400305
Nose-piece for screw-plug gauge M6	S-1400306
Nose-piece for screw-plug gauge M8	S-1400308
Nose-piece for screw-plug gauge M10	S-1400310
Nose-piece for screw-plug gauge M12	S-1400312
Nozzle	S-1400600
Sleeve	D-1400400

5. STORAGE

Air-hydraulic tool in the shipping container is to be kept in the environment with average humidity to 70% and average temperature from +5°C to +40°C, without aggressive vapors of salts, acids and leys.

6. OPERATING AND GUARANTY CONDITIONS

We recommend using modified compressed air for optimal function of the tool.

By modified compressed air is meant compressed atmospheric air without any solid particles or water, reduced for optimal pressure and lubricated with anticorrosive oil.

6.1. Operating conditions

Operating data: If you want the tool to work safely and reliably, you must follow the above mentioned instructions. Immediately before operating the tool: regulating valve (set up to the **max.** outlet pressure **0,7 MPa**), air filter and lubricating. Level of sound pressure $L_{pA1} = \dots$ dB exceeds 85 dB, in continuous operation of the tool we recommend the worker to wear ear protection. Average effective value of vibration acceleration $a_{w,T} = \dots$ m.s². The trigger allows safety operation of the tool by control force max. 9,8 N < 50 N without releasing the trigger, which is in accord with hygienic regulation.