



**Pneumatic, hydraulic
stamping and riveting tool
PNP 90 SNW-RIV**

Instruction manual



All photos, drawings and other illustrations as well as the text and other content in this instruction manual are subject to the copyright of both the TKR Group and the author involved. Reproduction, processing or other use is permitted only with express written consent.

1.	1. Information regarding this manual	4
	2. Explanation of symbols	5
	3. Labelling	6
2.	1. Operating principles	7
	2. Accessories and specifications	8
	3. Noise and vibration values for PNP 90 SNW-RIV	8
	4. Safety instructions	9
	5. Fundamentals of riveting tool handling	10
	6. Maintenance	11
3.	1. Technical data - pump PNP 90	12
	2. Technical data - rivet clamp SNW-RIV	13
4.	1. Initial start-up	14
	2. Riveting tool preparation and connection	16
	3. Riveting tool operation	22
	4. Hydraulic pump maintenance (oil change)	28
	5. Riveting tool storage	30
5.	1. Troubleshooting	32
	2. Warranty	34
	3. Declaration of Conformity	35

Other languages

To obtain this instruction manual in other languages, please visit our download area on the Internet site:

www.tkr-service.com

1.1 Information regarding this manual

Information Legislation stipulates that workers handling hydraulically-driven riveting tools must be protected.
If desired, training can be provided at TKR in Gevelsberg or on site at the customer.

Technical modifications In the interests of quality assurance, we reserve the unrestricted right to carry out technical modifications on the basis of further developments in technology and product improvements, without prior notice.

State of the technology This riveting tool represents state-of-the-art technology. To ensure the functionality of the equipment, it must be operated in a proper and safe manner.

Read the instruction manual Read the instruction manual carefully before using the riveting tool.

Handling All handling necessary to ensure correct operation is described in the instruction manual.
No work method other than that expressly approved by the manufacturer may be used.

Faults In the event of a fault, the user or owner may only carry out repair work for faults for which the relevant maintenance process is laid out in the instruction manual.

1.2 Explanation of symbols

In this instruction manual, some sections use internationally known warning symbols, warning symbols and general instructional symbols.

Follow all instructions and safety rules

The individual symbols are explained below.



Observe the instruction manual



TÜV certification



Observe the general information



Please note the following.



Wear face mask



Arrow to clarify pressing together



Wear gloves



Arrow indicating direction



Warning
General source of danger



For further information see chapter...



Warning
Hand could become trapped



Audibly engage



Warning
Finger could become trapped



Warning
Danger of environmental contamination



Warning
System under pressure

1.3 Labelling



Stamping and riveting tool label

- A** Name
- B** Serial number
- C** Manufacturer's details, date of manufacture
- D** Maximum permissible operating pressure (oil)
- E** CE mark
- F** Symbol to read the instruction manual

2.1 Operating principles

The pneumatically driven stamping and riveting tool, model PNP90 SNW-RIV, is used to install rivets. This tool set is specially designed to rivet sheet metal for the automotive industry. Each tool set consists of a pneumatically-driven hydraulic pump as well as the rivet clamp with hydraulic cylinder and the appropriate rivet mandrels and dies for the rivets in question.

Pump PNP 90

The hydraulic pump is a pneumatically driven pressure intensifier with an intensifying ratio of 1:100. This means that hydraulic pressure is one hundred times the preset air pressure. If the preset end pressure is reached, the pump automatically stops and keeps this end pressure constant. The hydraulic pump has a pneumatically controlled pressure relief valve.

The rivet clamp is connected to the pump with a hydraulic hose. This hose is connected to the pump via a leak-free quick release coupling. The coupling will only release from the equipment when it is depressurised.

Rivet clamp SNW-RIV

The two pneumatic control hoses must also be connected to the pump. Make sure that the black hose is attached to the coupling that is marked for the black hose. Once the high-pressure hose and the two control hoses have been connected to the rivet clamp, compressed air can be connected to the equipment.

The two control valves are installed on the rivet clamp, which activates pump function. Riveting can only be started when both valves are actuated. If one of the valves is deactivated, riveting is interrupted and the rivet plunger automatically retracts.

Never bypass either of the control valves or replace them with other valves! Without the genuine two-hand control operation, there is a danger of personal injury.

2.2 Accessories and specifications

Permissible rivet accessories	In the repair manual from the manufacturer recommended rivets
Permissible hydraulic oil	Filling capacity 280 ccm Hydraulic oil brand as per DIN 51524 and ATF as per DIN 51562-1; viscosity approx. 68 mm ² /s at 40°C Example: Shell Tellus TX 68, Dexron, Mercon, Hydroclear
Max. air pressure	6 bar / 87 PSI
Compressed air	Quality class 2 as per ISO 8573-1
Ambient temperature	5 – 50°C / 41 – 122°F
Safety	Protective gloves Face mask

2.3 Noise and vibration values

Emissions noise level:	LPAL < 75 dB (A)
Vibration emission value:	a < 2,5 m/s ²

2.4 Safety instructions

The stamping and riveting tool must only be used for riveting with the approved accessory tools. Only use genuine rivet mandrels and dies for the two rivet sizes. Note the information list on the packaging.

Make sure that the riveting tool is problem-free and that it has all functionality necessary to ensure safe operation.

The tool must only be used as a hand tool with two-hand operation! Any modification of the tool or other usage forms are the responsibility of the user.

Follow all health and safety regulations in the country of operation. Do not use any hoses or fittings that are not permitted for the equipment's operating pressure.

Protective gloves and a face mask must be worn during riveting as incorrect usage or a tool defect could cause parts to fly, which could lead to severe bodily injury.

See also ANSI Z87.1-1989

Never wave the tool in the air or allow it to fall.

Never use the stamping and riveting tool for purposes other than those intended and never allow untrained workers to use the tool.

The riveting tool must only be used at ambient temperatures between 5°C and maximum 50°C.

Never use the stamping and riveting tool in areas where there is a risk of explosion!

**Permissible
rivet accesso-
ries**

**Usage as
described in
instruction
manual**

Chapter 4.3



**Improper
use**



2.5 Fundamentals of riveting tool handling

Danger of bodily injury

Route all supply lines in a manner that prevents people from tripping over them. Correctly route and attach the compressed air hose. If a compressed air hose whips around wildly, it could cause severe bodily injury.



Before starting work, check the preset air pressure! Incorrectly set air pressure could cause equipment damage or bodily injury!

Max. air pressure

Make sure that the maximum permissible operating air pressure of **6 bar / 87 PSI** is never exceeded. Check the setting of the pressure regulating valve before each riveting operation!

Clean compressed air

Make sure that the pump is only supplied with clean and dry compressed air. Moisture and contamination could cause equipment malfunction and/or damage. Only use compressed air of quality class 2 as per ISO 8573-1.

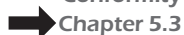
Always disconnect the riveting tool from pressure when leaving the work site!

Warranty

The manufacturer accepts no liability for damage or injury caused by improper repair or use of foreign replacement parts.

Incorrect usage of the riveting tool that leads to equipment damage invalidates the warranty.

Declaration of Conformity



Chapter 5.3

Riveting tool PNP 90 SNW-RIV has been tested and manufactured in accordance with European guidelines. The Declaration of Conformity has been included with this instruction manual.



The compressed air supply must be disconnected from the equipment before any adjustment or maintenance work is performed.

2.6 Maintenance

The tool's hydraulic system, pneumatic control systems, hoses and couplings must all be kept free of dirt and other contamination. Foreign bodies in the hydraulic fluid or in the control air will cause the tool system to malfunction.

Care and
maintenance

All maintenance and service work on the pump must only be performed with air disconnected and oil drained.



Normally, pump maintenance only entails a regular oil change (see 2.2 for permissible oils).

All other necessary maintenance work and/or repairs should be performed by the manufacturer or properly trained personnel.

Chapter 4.4 ←

With normal use of the pump, hydraulic oil should be changed every 80 operating hours or every 6 months. Make sure that used oil is disposed of as required by national environmental legislation.

Oil that is not properly disposed of could harm the environment.



The user must only perform the maintenance and repair measures outlined in this instruction manual.

Maintenance and repair work not covered in this instruction manual may only be performed by professionals with proper training by TKR. For further information on servicing and training, please contact us at our Service address:



TKR Spezialwerkzeuge GmbH

Service

Am Waldesrand 9–11

D-58285 Gevelsberg (Germany)

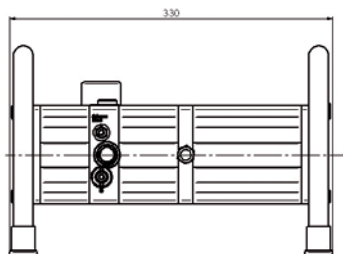
Telefon +49 2332 66607-77

Telefax +49 2332 66607-51

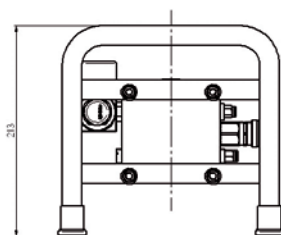
E-Mail support@tkr-service.com

3.1 Technical Data Pump PNP 90

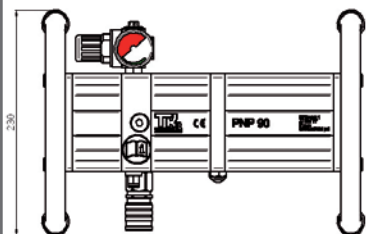
3.1.1



3.1.2



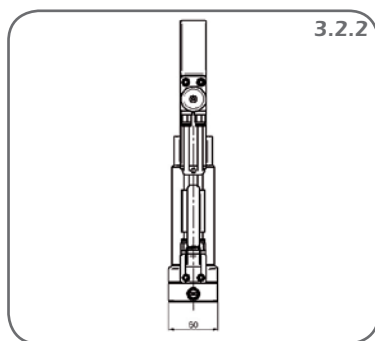
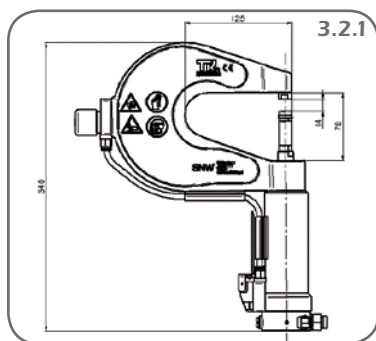
3.1.3



Length	330 mm
Width	230 mm
Height (incl. handle)	213 mm
Weight	7,665 kg
Max. Input pressure	6 bar
Max. Operating pressure	600 bar

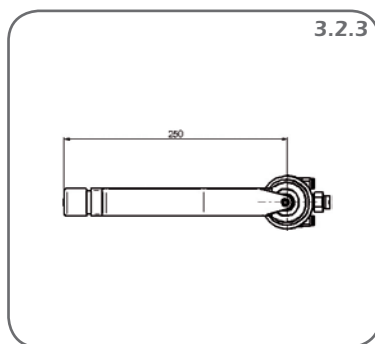
3.2 Technical Data

Rivet clamp SNW-RIV

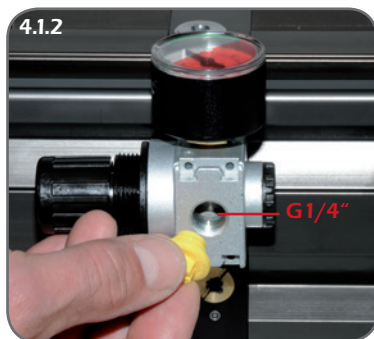


Length	340 mm
Width	60 mm
Height	275 mm
Clamp opening	78 mm
Opening depth	125 mm
Stroke	25 mm
Press force (6 bar)	55 kN
Weight	5 kg

Length and weight without hoses

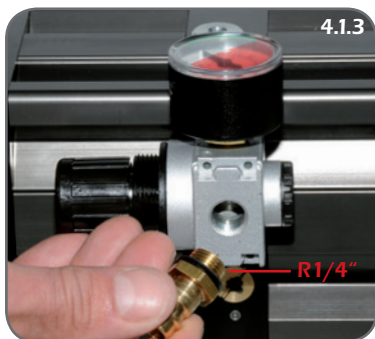


4.1 Initial start-up



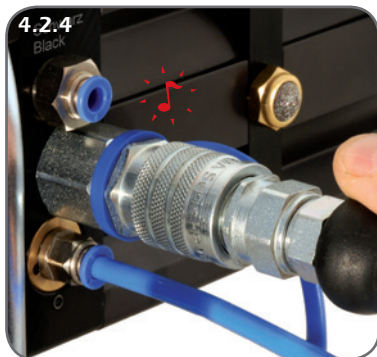
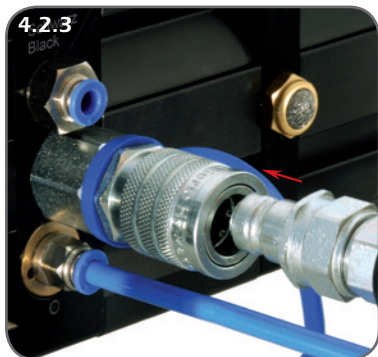
The equipment is delivered from the factory without a compressed air connection. The pressure reducing valve has a connection thread of G1/4" (internal thread).

The pressure regulating valve is delivered with a cap fitted (Fig. 4.1.1). Remove the cap (Fig. 4.1.2).



Use a compressed air connection with R1/4" thread and seal (Fig. 4.1.3). Screw this onto the regulating valve (Fig. 4.1.4).

4.2 Riveting tool preparation and connection



Before using the equipment, check the condition of the riveting tool and the hoses. Risk of severe bodily injury if the pump or the rivet clamp is damaged.



Check the hoses and couplings for damage.

Connect the high-pressure hose to the high-pressure pump with the quick release coupling. Make sure that the high-pressure coupling completely engages and locks (Fig. 4.2.4).

Connect the pneumatic hoses. Make sure that the black hose is attached to the marked coupling (Fig. 4.2.5).

In the event of any noticeable damage, the hydraulic components must be replaced. Damaged hoses or couplings could cause severe injury!



Incorrectly attached hoses could come loose and cause severe bodily injury.

4.2 Riveting tool preparation and connection

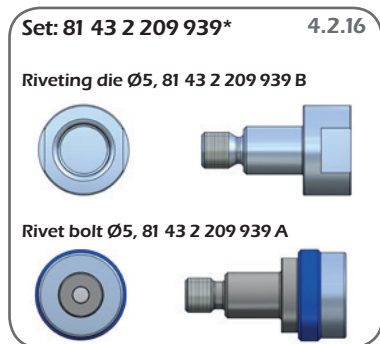
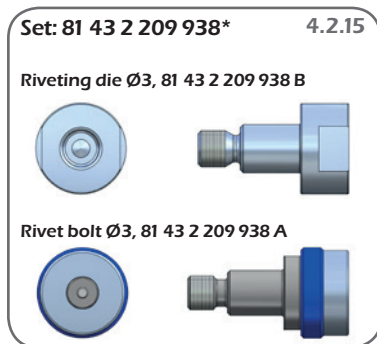
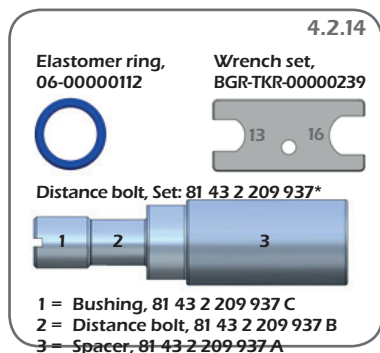


Insert the rivet mandrel and rivet die for the planned riveting operation in the rivet clamp and screw them into place (Fig. 4.2.7 – 4.2.11).

During the entire process, always make sure that the rivet mandrel and die are firmly seated.

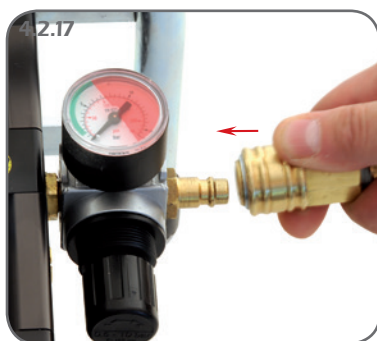


Make sure that both the correct rivet mandrel and the correct die are used. Check for the correct part numbers and designations (Fig. 4.2.14 / 4.2.15 / 4.2.16).



* These parts are available directly from BMW via your normal parts ordering channels.

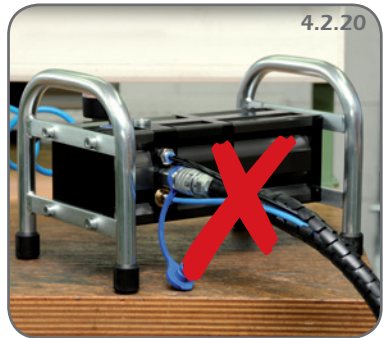
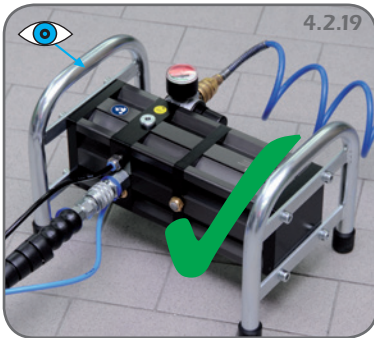
4.2 Riveting tool preparation and connection



Connect compressed air to the pressure regulating valve and set the pressure (Fig. 4.2.16 / 4.2.17).



Never use pressure over the permitted value of 6 bar or 87 PSI. This could cause damage to the equipment or even bodily injury (Fig. 4.2.17).



Make sure that the pump is standing on a non-slip surface and that the hoses are routed in a way that prevents them from being damaged or pinched. In addition, the hoses must be routed in a manner that prevents people from tripping over them (Fig. 4.2.18 = right / 4.2.19 = wrong).

Make sure that the pump and riveting tool are set up in a work area that is free from heat sources (max. 50°C / 120°F), corrosive liquids, oil and grease.

Before using the equipment, make sure that the pump is standing on a secure surface.



4.3 Riveting tool operation



Only use tools and accessories that do not show signs or wear or damage.

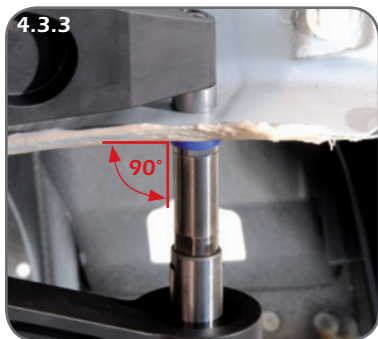
It is particularly important for the rivet stamp and rivet die that they are properly seated and show no signs of damage.

If in doubt, always replace the defective rivet stamp or die with a genuine replacement part.



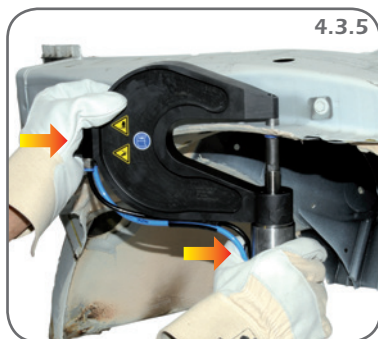
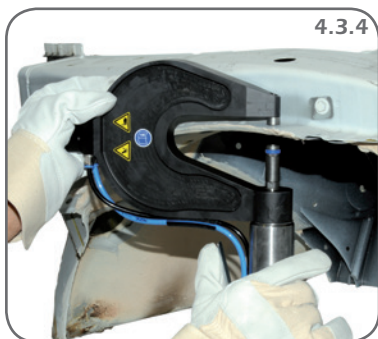
Insert a rivet for the planned riveting process in the rivet mandrel and position the equipment on the object, holding the die in the proper spot as required by the type of riveting process. Make sure that the rivet and its connecting surface are completely straight against the rivet mandrel.

During riveting, an improperly positioned rivet could cause damage and serious injury (Fig. 4.3.1 = right / 4.3.2 = wrong).



Before starting to rivet, it is a good idea to use a test piece of sheet metal to check that the equipment is functioning properly.

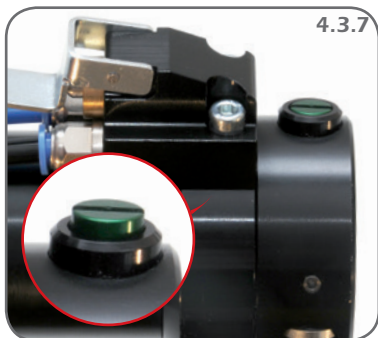
Always make sure that the rivet clamp or the actuating cylinder is held as perpendicular to the top of the sheet metal as possible (Fig. 4.3.3)!



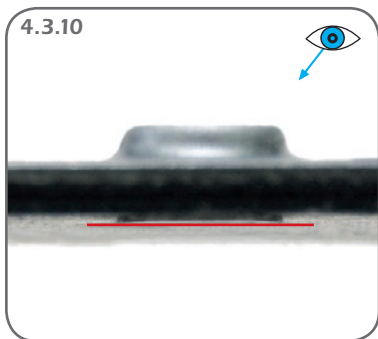
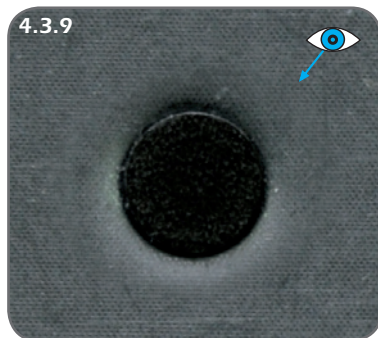
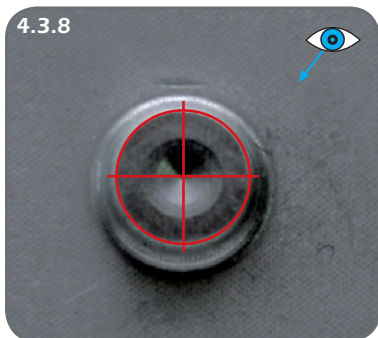
When both control valves are operating, the riveting operation is started and the hydraulic plunger comes out and stamps the rivet into the sheet metal (Fig. 4.3.5).

The rivet clamp can be pivoted 360° (Fig. 4.3.6).

If the maximum press pressure is reached, the pressure indicator on the pivoting connection of the rivet clamp is activated. This pressure indicator is a green button that comes out approx. 3 mm to signal that the end pressure has been reached (Fig. 4.3.7).



4.3 Riveting tool operation



The results should be checked after the riveting operation. If the installed rivet does not meet quality requirements, the reason for the fault must be determined.

If the quality of the installed rivet is acceptable, the work process can be repeated.



After each riveting operation, check that the rivet mandrel and rivet die are firmly seated. If they have loosened, tighten them with the spanner that came with the equipment.



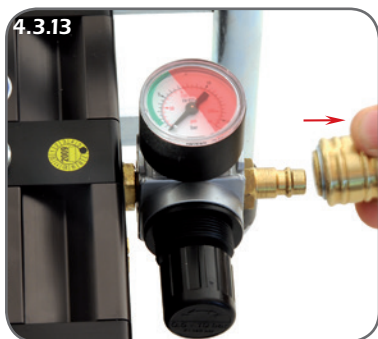
Upon completing riveting work, remove excess adhesive residue (only when using adhesive rivets) from all contaminated parts. Remove all relevant tool components (Fig. 4.3.11) and clean them with acetone.



If adhesive residue is allowed to remain on the riveting equipment, it will eventually cause malfunction. Before starting work, any parts requiring replacement must be replaced with genuine replacement parts.



4.3 Riveting tool operation



After riveting or when taking a break from work, disconnect the compressed air supply from the pump (Fig. 4.3.13). Then disconnect the control hoses and seal the openings (Fig. 4.3.14).

Make sure that the disconnected hoses never make contact with the dirty floor or the ground.



Foreign bodies or contamination in the hydraulic oil or in the control lines could cause the equipment to malfunction.



4.3.15



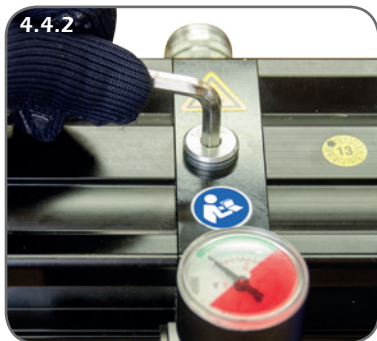
Before and after each operation, check the system for oil leaks (Fig. 4.3.15). An oil leak indicates a fault in the system. In such cases, interrupt work and locate the fault or send the equipment to an authorised dealer for repair.

4.4 Hydraulic pump maintenance

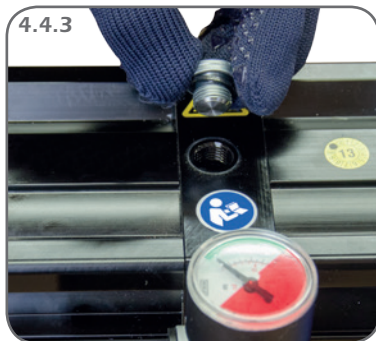
4.4.1



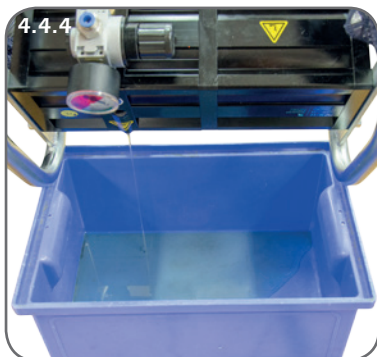
4.4.2



4.4.3

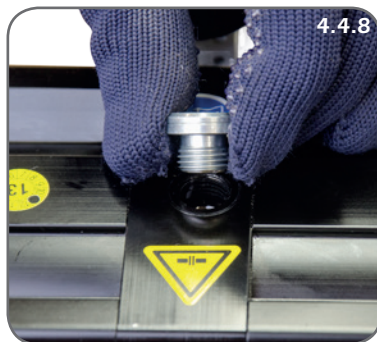


4.4.4



Draining oil

Undo the sealing plug on the top of the pump (Fig. 4.4.2 / 4.4.3) and let the used hydraulic fluid flow into a suitable container (Fig. 4.4.4).



Filling oil

Fill with fresh oil that complies with the specifications. Filling capacity is normally approx. 280 ccm (Fig. 4.4.5). When filling, the oil level should reach the filler neck, but the thread of the sealing plug must remain visible (Fig. 4.4.7). Close the filler opening with the sealing plug (Fig. 4.4.8).

Note that the oil must be free from contamination. Make sure that no dirt or foreign bodies enter the pump reservoir when changing oil!

**Main-
tenance
chapter 2.6**



4.5 Riveting tool storage

4.5.1



Only store the tool in the transport case designed for this purpose. Make sure that the hoses do not become kinked (Fig. 4.5.1)! Never transport the tool by the hoses!

5.1 Troubleshooting

Problem	Cause	Remedy	Page
Pump does not run	No air connected	Connect compressed air	20
	Control lines not connected or incorrectly connected	Connect control lines correctly and make sure they are properly seated	16
	Insufficient air pressure	Check air supply	20
	Hydraulic hose not connected	Connect hydraulic hose as described in the instruction manual	16
	Air pressure not correctly set	Set air pressure to prescribed value	20
	Defective drive plunger	Repair through manufacturer	–
Hydraulic pump will not shut off	Control hoses incorrectly connected or mixed up	Connect control hoses as described in the instruction manual	16
	Defective control valves	Repair through manufacturer	–
Rivet not affixed correctly	Rivet mandrel or rivet die defective	Replace rivet mandrel or rivet die	18/19
	Rivet mandrel or rivet die not functional due to adhesive residue	Clean or replace rivet mandrel and/or rivet die	25
	Insufficient press pressure	Too little air pressure or air pressure incorrectly set	20
	Press cylinder does not travel far enough	Too little oil in the pump. Check oil level and top up if necessary.	29
	Oil leak from the pump	Repair through manufacturer	27
	Air leak from the pump and/or control valve	Repair through manufacturer	–
	Wrong rivet length	Follow BMW repair procedure	–

Problem	Cause	Remedy	Page
The rivet plunger travels too slowly or not at all	Too little oil in the pump	Check oil level and top up if necessary	29
	Hydraulic seal in the pump is worn	Repair through manufacturer	–
	Defect valves in the pump	Repair through manufacturer	–
Air leak	Defective hose	Replace hose	–
	Defective couplings	Replace coupling	–
	Defective seals	Repair through manufacturer	–
Oil leak	Defective hose	Replace hose	–
	Defective coupling	Replace coupling	–
	Pump loses oil	Repair through manufacturer	–

5.2 Warranty

Stamping and riveting tools from TKR Spezialwerkzeuge GmbH come with a 24-month warranty against material and manufacturing defects.

This does not cover the wear parts (rivet mandrels, rivet dies, spacing bolts and spacing sleeves) or hydraulic oil.

The warranty period begins on the date of delivery, as specified on the invoice or delivery note.

The warranty is valid for the user/customer provided that the tool is obtained from an authorised sales outlet and is used as described in the instructions and for the purposes for which it was designed.

The warranty becomes invalid if the tool is used for purposes other than those for which it was designed.

In addition, the warranty becomes invalid if the tool is not used as described in the instruction manual.

In the event of defect or fault, TKR Spezialwerkzeuge GmbH shall only repair or replace faulty parts at its own discretion.

Service address

TKR Spezialwerkzeuge GmbH

Service

Am Waldesrand 9-11

D-58285 Gevelsberg (Germany)

Phone +49 2332 66607-77

Fax +49 2332 66607-51

E-mail support@tkr-service.com



Spare parts service:

www.tkr-service.com

EC Declaration of Conformity

In accordance with EU Machinery Directive
2006/42/EC

Manufacturer: TKR Spezialwerkzeuge GmbH
Am Waldesrand 9–11
58285 Gevelsberg, Germany

Contact: Thorsten Weyland, Technical director
Technical documentation

Tool type: Pneumatic/hydraulic stamping and riveting tool
Type designation: PNP 90 SNW / RIV

Has been developed and designed in accordance
with the standards and guidelines specified
below by

TKR Spezialwerkzeuge GmbH
Am Waldesrand 9–11
58285 Gevelsberg (Germany)

Referenced German Product safety law (ProdSG)
harmonised EN 693; EN 11148-1; EN 11148-10; EN 792-13;
standards: EN ISO 4413; EN ISO 4414; ISO 11200;
ISO 11202; EN ISO 12100

EU-Machinery Directive: 2006/42/EC

Statement of manufacturer: The products specified herein comply with the
requirements of the referenced guidelines
and standards.

Thorsten Weyland

Gevelsberg, den 20.01.2017 Thorsten Weyland
Technical director



TKR Group
Am Waldesrand 9-11
D-58285 Gevelsberg (Germany)

Phone +49 2332 66607-77
Fax +49 2332 66607-51
E-mail info@tkrgroup.com
Internet www.tkrgroup.com



Spare parts service:
www.tkr-service.com