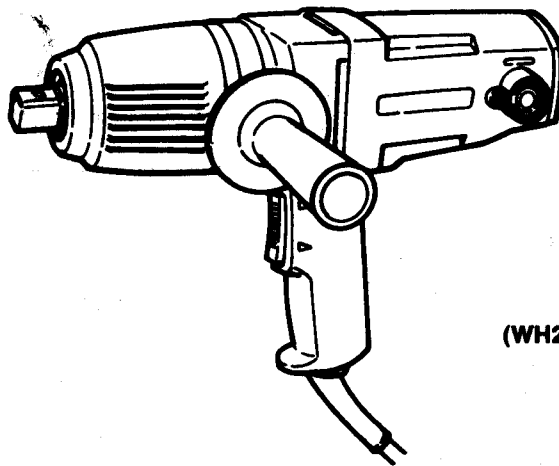


electric IMPACT WRENCH.

HITACHI

**IMPACT WRENCH
SCHLAGSCHRAUBER
CLÉ À CHOC
AVVITATRICE BATTENTE
SLAGMOERAANZETTER
LLAVE DE IMPACTO**

**WH 14 · WH 16
WH 22 · WH 22SA**



(WH22)

Read through carefully and understand these instructions before use.
Diese Anleitung vor Benutzung des Werkzeugs sorgfältig durchlesen und verstehen.
Lire soigneusement et bien assimiler ces instructions avant usage.
Prima dell'uso leggere attentamente e comprendere queste istruzioni.
Deze gebruiksaanwijzing s.v.p. voor gebruik zorgvuldig doorlezen.
Leer cuidadosamente y comprender estas instrucciones antes del uso.



**Handling instructions
Bedienungsanleitung
Mode d'emploi
Istruzioni per l'uso
Gebruiksaanwijzing
Instrucciones de manejo**

(3) WH22, WH22SA:
Table 3

B = 19 mm

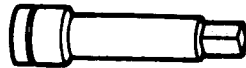
Socket Designation	Ordinary Socket				Long Socket			
	Dimension (mm)				Dimension (mm)			
	S	D	E	L	S	D	E	L
Hex. Socket 22	22	32	32	60				
23	23	38	29	55	23	33	32	60
24	24	40	29	55	24	34	32	60
26	26	42	29	55	26	38	57	85
27	27	43	29	55	27	39	57	85
29	29	45	29	55	29	42	57	85
30	30	47	29	55	30	43	57	85
32	32	50	29	55	32	46	72	85
35	35	52	29	55	35	52	72	100
36	36	55	29	55	36	55	72	100

2. Extension bar

The extension bar is convenient for working in very restricted spaces or when the socket provided cannot reach the bolt to be tightened.

CAUTION

When the extension bar is used the tightening torque is reduced slightly compared with the ordinary socket. So it is necessary to operate the tool a little longer to get the same torque.



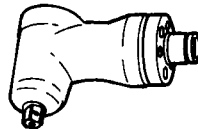
3. Universal joint (WH 14, WH 22, WH22SA)

The universal joint is convenient for impacting nuts when there is an angle between the socket and wrench, or when working in a very narrow space.



4. Corner attachment (Model EW-14R) (WH14)

Use this attachment only when the machine is applied to the nut or bolt at a right angle.



Optional accessories are subject to change without notice.

APPLICATIONS

- Tightening and loosening various kinds of bolt and nut.

PRIOR TO OPERATION

1. Power source

Ensure that the power source to be utilized conforms to the power requirements specified on the product nameplate.

2. Power switch

Ensure that the power switch is in the OFF position. If the plug is connected to a power receptacle while the power switch is in the ON position, the power tool will start operating immediately, which could cause a serious accident.

3. Extension cord

When the work area is removed from the power source, use an extension cord of sufficient thickness and rated capacity. The extension cord should be kept as short as practicable.

4. Fixing the side handle

The position of the side handle attached to the hammer case can be changed by unscrewing the handle. (Right hand screw) Turn the handle to the desired position for the job and secure the handle by screwing up tight.

5. Mounting the socket

- (1) Pin, O-ring type (WH14, WH16, WH22) (Fig. 1) Select a socket matched to the bolt to be tightened or loosened. Insert the socket on the anvil of the wrench, and secure it with the pin and ring. When dismantling the socket, reverse the sequence.
- (2) Plunger type (WH22SA) (Fig. 2)

Align the plunger located in the square part of the anvil with the hole in the hex socket. Then push the plunger, and mount the hex socket on the anvil. Check that the plunger is fully engaged in the hole. When removing the socket, reverse the sequence.

HOW TO USE

1. Operation of switch (Fig. 3)

The switch in this machine functions as a motor switch and rotational direction selector switch. When the switch is set to R indicated on the handle cover, the motor rotates clockwise to tighten the

bolt. When the switch is set to L, the motor rotates counterclockwise to loosen the bolt. When the switch is released, the motor stops.

CAUTION

Be sure to turn the switch OFF and wait until the motor completely stops before changing the direction of wrench revolution. Switching while the motor is rotating will result in burning the motor.

2. Tightening and loosening bolts

A hex socket matching the bolt or nut must first be selected. Then mount the socket on the anvil, and grip the nut to be tightened with the hex socket. Holding the wrench in line with the bolt, press the power switch to impact the nut for several seconds. If the nut is only loosely fitted to the bolt, the bolt may turn with the nut, therefore preventing proper tightening. In this case, stop impact on the nut and hold the bolt head with a wrench before restarting impact, or manually tighten the bolt and nut to prevent them slipping.

OPERATIONAL CAUTIONS

1. Confirm the line voltage (Figs. 4, 5, 6, 7 and 8)

The available tightening torque is influenced by line voltage. Reduced line voltage lowers the available tightening torque.

For example, if you use a 220 V type wrench on a 200 V line the available tightening torque will be reduced to 70 to 90%. When extending the power cord, use an extension cord which is as short as possible. When the line voltage is low and a long extension cord is needed a step up transformer should be used. The relation between the line voltage and the tightening torque are shown in the figures.

2. Work at a tightening torque suitable for the bolt under impact

The optimum tightening torque for nuts and bolts differs with material and size of the nuts and bolts. An excessively large tightening torque for a small bolt may stretch or break the bolt. The tightening torque increases proportionally to the operating time. Use the correct operating time for the bolt.

Selecting the socket to be matched to the bolt
Be sure to use a socket which is matched to the bolt to be tightened. Using an improper socket will result not only in insufficient tightening but also in damage to the socket or nut.

A worn or deformed hex or square-holed socket will not give an adequate tightness for fitting to the nut or anvil, consequently resulting in loss of tightening torque.

Pay attention to wear of socket holes, and replace before further wear develops. Matching socket and bolt sizes are shown in Tables 1, 2 and 3.

The numerical value of a socket designation denotes the side to side distance (S) of its hex hole.

4. Holding the tool

Hold the Impact Wrench firmly with both hands by the body handle and the side handle. In this case hold the wrench in line with the bolt.

It is not necessary to push the wrench very hard.

Hold the wrench with a force just sufficient to counteract the impact force.

5. Confirm the tightening torque

The following factors contribute to a reduction of the tightening torque. So confirm the actual tightening torque needed by screwing up some bolts before the job with a hand torque wrench.

Factors affecting the tightening torque are as follows.

(1) Line voltage:

The tightening torque decreases when the line voltage becomes low. (See Figs. 4, 5, 6, 7 and 8)

(2) Operating time:

operating time:

The tightening torque increases when the operating time increases. But the tightening torque does not increase above a certain value even if the tool is driven for a long time. (See Figs. 4, 5, 6, 7 and 8)

(3) Diameter of bolt:

The tightening torque differs with the diameter of the bolt as shown in Figs. 4, 5, 6, 7 and 8. Generally a larger diameter bolt has a larger tightening torque.

(4) Tightening conditions:

The tightening torque differs according to the torque ratio; class, and length of bolts even when bolts with the same size threads are used. The tightening torque also differs according to the condition of the surface of metal through which the bolts are to be tightened.

(5) Using optional parts:

The tightening torque is reduced a little when an extension bar, universal joint or a long socket is used.

(6) Clearance of the socket:

A worn or deformed hex or a square-holed socket will not give an adequate tightness to the fitting between the nut or anvil, consequently resulting in loss of tightening torque.

Using an improper socket which does not match to the bolt will result in an insufficient tightening torque. Matching socket and bolt sizes are shown in Tables 1, 2 and 3.

MAINTENANCE AND INSPECTION

1. Inspecting the socket

A worn or deformed hex or a square-holed socket will not give an adequate tightness to the fitting between the nut or anvil, consequently resulting in loss of tightening torque. Pay attention to wear of socket holes periodically, and replace with a new one if needed.

2. Inspecting the mounting screws

Regularly inspect all mounting screws and ensure that they are properly tightened. Should any of the screws be loose, retighten them immediately. Failure to do so could result in serious hazard.

3. Inspecting the carbon brushes (Fig.9)

The motor employs carbon brushes which are consumable parts. Since an excessively worn carbon brush can result in motor trouble, replace the carbon brush with a new one having the same carbon brush No. shown in the figure when it becomes worn to or near the "wear limit". In addition, always keep carbon brushes clean and ensure that they slide freely within the brush holders.