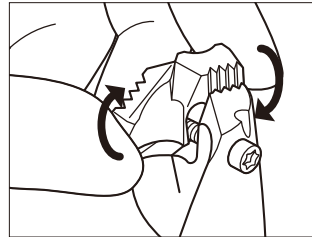
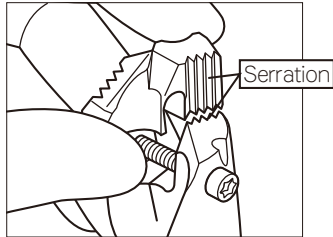


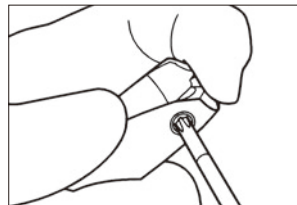
Thank you for purchasing MITSUBISHI WSTAR Indexable drill.  
Read this manual before use.

### ■ Fitting inserts on holders

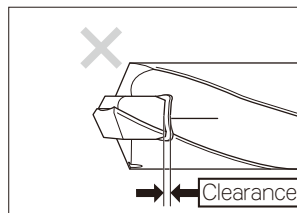
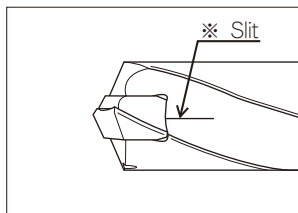
1. Check if a clamp screw of a holder is loose before fitting an insert on the holder. Remove the clamp screw to install the insert. (H type insert)
2. Check if there are any foreign objects or dirt in slits of the holder flutes and holder flute end. Blow any foreign objects and dirt with air. If they have not been removed, use the provided plate to remove.
3. Mesh a serration of the insert and that of the holder to put the insert into grooves of the holder. Then the insert can be fit smoothly if you put it into the grooves while pressing the insert against the serration face of the holder.



4. Fasten the clamp screw using the provided or off-the-shelf torque wrench while holding top of the insert lightly with your thumb.



5. Check if there is no clearances between the insert bottom and holder flute end.



Caution 1) Please fully note that poor fitting of inserts could provide poor drilling performance or break drills.

Caution 2) In case of setting indexable insert, make sure to take precautions such as wearing globes.

※ A slit is not provided for TAWS/M/LNH0036, TAWS/M/LNH0037 and TAWS/M/LNH0039 holders.

### ■ Clamp screw torque (General guide)

Tighten clamp screws referring to the right table for torque.

| Drill diameter (inch) | Torque            |
|-----------------------|-------------------|
| .551~.610             | 1.5ft·lb(2.0N·m)  |
| .611~.728             | 1.5ft·lb(2.0N·m)  |
| .729~.846             | 2.6ft·lb(3.5N·m)  |
| .847~.964             | 4.1ft·lb(5.5N·m)  |
| .965~1.082            | 6.3ft·lb(8.5N·m)  |
| 1.083~1.197           | 8.8ft·lb(12.0N·m) |

### ■ Recommended cutting conditions

| Workpiece material | Condition<br>Hardness                  | Drill diameter (inch) |                        | .551~.610           |                        | .611~.728           |                        | .729~.846           |                        | .847~.964           |                     | .965~1.082          |                     | 1.083~1.197      |                     |
|--------------------|--|-----------------------|------------------------|---------------------|------------------------|---------------------|------------------------|---------------------|------------------------|---------------------|---------------------|---------------------|---------------------|------------------|---------------------|
|                    |  | Cutting speed (SFM)   | Feed (IPR)             | Cutting speed (SFM) | Feed (IPR)             | Cutting speed (SFM) | Feed (IPR)             | Cutting speed (SFM) | Feed (IPR)             | Cutting speed (SFM) | Feed (IPR)          | Cutting speed (SFM) | Feed (IPR)          |                  |                     |
|                    |  | Carbon steel          | 180~280HB              | 230<br>(200~300)    | .0079<br>(.0059~.0098) | 260<br>(200~330)    | .0098<br>(.0079~.0118) | 260<br>(200~330)    | .0098<br>(.0079~.0118) | 300<br>(230~360)    | .118<br>(.098~.138) | 330<br>(260~390)    | .118<br>(.098~.138) | 330<br>(260~390) | .118<br>(.098~.138) |
| Alloy steel        | 280~350HB                              | 200<br>(160~260)      | .0059<br>(.0047~.0071) | 230<br>(160~300)    | .0079<br>(.0059~.0098) | 230<br>(160~300)    | .0079<br>(.0059~.0098) | 260<br>(200~330)    | .098<br>(.079~.118)    | 300<br>(230~360)    | .098<br>(.079~.118) | 300<br>(230~360)    | .098<br>(.079~.118) |                  |                     |
| Mild steel         | ≤180HB                                 | 230<br>(200~300)      | .0079<br>(.0059~.0098) | 260<br>(200~330)    | .0098<br>(.0079~.0118) | 300<br>(230~360)    | .098<br>(.079~.118)    | 330<br>(260~390)    | .118<br>(.098~.138)    | 360<br>(260~390)    | .118<br>(.098~.138) | 360<br>(260~390)    | .118<br>(.098~.138) |                  |                     |
| Stainless steel    | ≤200HB                                 | 160<br>(130~200)      | .0059<br>(.0047~.0071) | 160<br>(130~200)    | .0059<br>(.0047~.0071) | 200<br>(160~230)    | .079<br>(.059~.087)    | 200<br>(160~230)    | .079<br>(.059~.087)    | 230<br>(200~260)    | .098<br>(.079~.118) | 230<br>(200~260)    | .098<br>(.079~.118) |                  |                     |
| Ductile cast iron  | Tensile strength ≤450N/mm <sup>2</sup> | 230<br>(160~300)      | .0079<br>(.0059~.0098) | 260<br>(200~300)    | .0098<br>(.0079~.0118) | 260<br>(200~300)    | .0098<br>(.0079~.0118) | 300<br>(200~330)    | .118<br>(.098~.138)    | 330<br>(260~360)    | .118<br>(.098~.138) | 330<br>(260~360)    | .118<br>(.098~.138) |                  |                     |
| Cast iron          | Tensile strength ≤350N/mm <sup>2</sup> | 230<br>(160~300)      | .0079<br>(.0059~.0098) | 330<br>(200~390)    | .0098<br>(.0079~.0118) | 390<br>(200~460)    | .098<br>(.079~.118)    | 430<br>(260~490)    | .138<br>(.098~.157)    | 460<br>(300~520)    | .138<br>(.098~.157) | 460<br>(300~520)    | .157<br>(.118~.177) |                  |                     |

- Notes
1. When using the 8D type holder, reduce the cutting speed by approx. 20%.
  2. When using the 8D type holder, it is recommended to drill a pilot guide hole.
  3. H type honing is recommended when machining mild steel and stainless steel.
  4. Use the internal coolant system when machining stainless steel. (MQL and mist machining should not be used.)

### ■ Parts table

| Holder order number | Insert screw | Wrench   | Plate   | Lubricant to prevent screw seizing |
|---------------------|--------------|----------|---------|------------------------------------|
| TAWS/M/LNH0036      | WS254012T    | ① TKY08W | WPT4405 | MK1KS                              |
| TAWS/M/LNH0037      | WS254013T    |          |         |                                    |
| TAWS/M/LNH0039      | WS254014T    |          |         |                                    |
| TAWS/M/LN0041       | WS254015T    |          |         |                                    |
| TAWS/M/LN0044       | WS254016T    |          |         |                                    |
| TAWS/M/LN0045       | WS304517T    |          |         |                                    |
| TAWS/M/LN0046       | WS304518T    |          |         |                                    |
| TAWS/M/LN0049       | WS355520T    |          |         |                                    |
| TAWS/M/LN0051       | WS355521T    |          |         |                                    |
| TAWS/M/LN0054       | WS406023T    | ② TKY10T |         |                                    |
| TAWS/M/LN0056       | WS406024T    |          |         |                                    |
| TAWS/M/LN0059       | WS508026T    |          |         |                                    |
| TAWS/M/LN0061       | WS508027T    | ② TKY15T |         |                                    |
| TAWS/M/LN0100       | WS508027T    |          |         |                                    |
| TAWS/M/LN0102       |              | ② TKY25T |         |                                    |
| TAWS/M/LN0105       |              |          |         |                                    |
| TAWS/M/LN0107       |              | ② TKY27T |         |                                    |
| TAWS/M/LN0110       |              |          |         |                                    |
| TAWS/M/LN0112       |              |          |         |                                    |

Always apply an anti-seizure lubricant to clamp screws when exchanging them.