

## Single lip drill with indexable inserts WP-ELB Series 10

Drill- $\phi$		Tool body	Cutting Insert	Guide pads		Adjusting shim	Torx screw	Torx Key
von	bis							
12,000	13,940	WPELB-10- $\phi$ x L-P	TSTS-CB2-00	TSTS-GC04-P	TSTS-GC04A-P	TSTS-S04-0.14	TSTS-SGI-M2.2	TSTS-SD-7
13,950	14,500	WPELB-10- $\phi$ x L-P	TSTS-CB2-01	TSTS-GC05-P	TSTS-GC05A-P	TSTS-S05-0.14	TSTS-SGI-M2.2	TSTS-SD-7
14,510	15,000	WPELB-10- $\phi$ x L-P	TSTS-CB2-01	TSTS-GC05-P	TSTS-GC05A-P	TSTS-S05-0.14	TSTS-SGI-M2.2	TSTS-SD-7
15,010	15,700	WPELB-10- $\phi$ x L-P	TSTS-CB2-02	TSTS-GC05-P	TSTS-GC05A-P	TSTS-S05-0.14	TSTS-SGI-M2.5	TSTS-SD-8
15,710	16,500	WPELB-10- $\phi$ x L-P	TSTS-CB2-02	TSTS-GC05-P	TSTS-GC05A-P	TSTS-S05-0.14	TSTS-SGI-M2.5	TSTS-SD-8
16,510	17,300	WPELB-10- $\phi$ x L-P	TSTS-CB2-02		TSTS-GC05-P	TSTS-S05-0.14	TSTS-SGI-M2.5	TSTS-SD-8
17,310	18,000	WPELB-10- $\phi$ x L-P	TSTS-CB2-05		TSTS-GC05-P	TSTS-S05-0.14	TSTS-SGI-M2.5	TSTS-SD-8
18,010	18,800	WPELB-10- $\phi$ x L-P	TSTS-CB2-05		TSTS-GC05-P	TSTS-S05-0.14	TSTS-SGI-M2.5	TSTS-SD-8
18,810	19,700	WPELB-10- $\phi$ x L-P	TSTS-CB2-05		TSTS-GC05-P	TSTS-S05-0.14	TSTS-SGI-M2.5	TSTS-SD-8
19,710	20,700	WPELB-10- $\phi$ x L-P	TSTS-CB2-07		TSTS-GC06-P	TSTS-S06-0.14	TSTS-SGI-M3	TSTS-SD-9
20,710	21,700	WPELB-10- $\phi$ x L-P	TSTS-CB2-07		TSTS-GC06-P	TSTS-S06-0.14	TSTS-SGI-M3	TSTS-SD-9
21,710	22,700	WPELB-10- $\phi$ x L-P	TSTS-CB2-07		TSTS-GC06-P	TSTS-S06-0.14	TSTS-SGI-M3	TSTS-SD-9
22,710	23,800	WPELB-10- $\phi$ x L-P	TSTS-CB2-07		TSTS-GC06-P	TSTS-S06-0.14	TSTS-SGI-M3	TSTS-SD-9
23,810	25,000	WPELB-10- $\phi$ x L-P	TSTS-CB2-08		TSTS-GC06-P	TSTS-S06-0.14	TSTS-SGI-M3	TSTS-SD-9
25,010	26,000	WPELB-10- $\phi$ x L-P	TSTS-CB2-08		TSTS-GC06-P	TSTS-S06-0.14	TSTS-SGI-M3	TSTS-SD-9
26,010	27,000	WPELB-10- $\phi$ x L-P	TSTS-CB2-08		TSTS-GC06-P	TSTS-S06-0.14	TSTS-SGI-M3	TSTS-SD-9
27,010	28,000	WPELB-10- $\phi$ x L-P	TSTS-CB2-08		TSTS-GC06-P	TSTS-S06-0.14	TSTS-SGI-M3	TSTS-SD-9

### Important Information

All specified values are intended solely as a guideline and may vary depending on the application. For special applications please contact the TBT tool Service

**TBT is not liable for improper use of the tools and for any insufficient mechanical conditions or operating errors!**

**Undue use can cause severe damages and be hazardous or even fatal for operating staff.**

### Operational Instructions

For indexable gun drills TBT WP-ELB series 10

#### Introduction

Indexable gun drills offer in addition to the high efficiency important advantages in handling:

- Quick change of wear parts
- No regrinding necessary
- Easy inventory of wear parts

Thus, the TBT WP-ELB series 10 are particularly suitable for minimizing the non-productive times.

**Please use only original TBT wear parts to ensure proper functioning.**

Cutting plate and guide pads are indexable.

At the end of life time the cutting plate and / or the guide pads can be detached, turned by 180° and re-inserted.

#### Assembly

To tighten the screws we recommend using a torque screwdriver (available as optional)

A simple Torx screwdriver is supplied with each new tool.

Please observe the following values:

Drill $\phi$	Screw	Torque
12,000 – 15,000	M 2,2	0,6 Nm
15,010 – 19,700	M 2,5	0,6 Nm
19,710 – 28,000	M3,0	0,9 Nm

#### Bore quality

Using standard tools, bore diameter tolerances up to IT8 are attainable. In individual cases IT7 can be reached after consultation and possible fine adjustment of the tool.

## Tool design

TBT indexable gun drills consist of the tool body in which the wear parts such as insert and guide pads are screw fitted. See below schematic illustrations for both the short and long body version including their wear parts.

An adjusting shim below the diameter guide pad is used to achieve a higher accuracy of the drilling diameter.

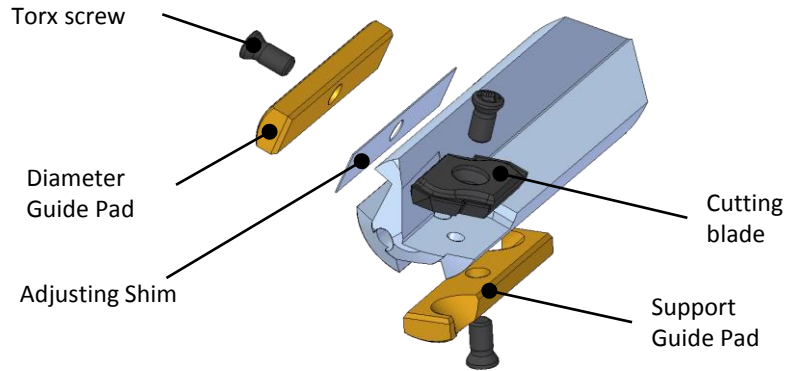
For normal applications it is not necessary to adjust the tool.

For higher accuracy requirements, this may be necessary.

**It is always recommended to perform a fitting check of pilot hole or drill bush with the tool before initiating the drilling process.**

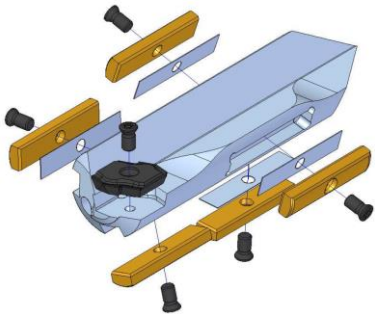
### Version with short body

for standard deep drilling tasks



### Version with long body

For cross drilling and drilling tasks with special requirements in terms of guide behavior



In certain cross drilling operations, the guide pads of the guide part can be fitted with thicker adjusting shims in order to achieve a tighter guidance. Such modified tool systems need to be checked for accuracy fit prior to their use.

## Operating conditions

The maximum potential process parameters depend on a variety of factors e.g. work piece material, required hole quality in terms of diameter tolerance and drift, machine and tool diameter.

Furthermore, there is always a conflict of objectives between the highest possible feed rate and tool life.

This has to be considered when selecting the process parameters.

The indicated values can therefore constitute only guidelines and differ depending on the application!

Preferably suitable deep hole drilling oil should be used, or an emulsion with EP additives and an oil content of at least 15% to ensure proper functionality of the tools.

Material	Cutting Speed. $V_c$ in m/min	Feed. $v_f$ in mm/U		
		$\varnothing$ 12 to 16	$\varnothing$ 16 to 20	$\varnothing$ 20 to...
Construction and cutting steel $\delta B < 700 \text{ N/mm}^2$	60 – 90	0,08 - 0,10	0,08 - 0,16	0,10 - 0,18
Heat-treated steel $\delta B < 900 \text{ N/mm}^2$	70 – 90	0,06 - 0,12	0,08 - 0,16	0,10 - 0,18
Heat-treated steel $\delta B < 1100 \text{ N/mm}^2$	60 – 80	0,06 - 0,10	0,08 - 0,14	0,14 - 0,16
case-hardened steel $\delta B < 700 \text{ N/mm}^2$	60 – 80	0,06 - 0,12	0,10 - 0,16	0,14 - 0,18
case-hardened steel $\delta B < 1100 \text{ N/mm}^2$	60 – 80	0,06 - 0,10	0,08 - 0,12	0,10 - 0,16
Nitriding steel $\delta B < 1100 \text{ N/mm}^2$	50 – 70	0,06 - 0,10	0,08 - 0,12	0,10 - 0,16
ferritic stainless steel (heat resistant)	50 – 60	0,06 - 0,10	0,08 - 0,12	0,12 - 0,18
austenitic stainless steel	50 – 60	0,06 - 0,08	0,08 - 0,10	0,10 - 0,14
High Tempered Alloy Ni-Co-Fe base	50 – 70	0,06 - 0,08	0,08 - 0,10	0,10 - 0,14
Cast iron unalloyed. and alloys.	70 – 100	0,08 - 0,12	0,10 - 0,16	0,16 - 0,20
GGG, GGL, GTS, GTW, HB < 2400 N/mm <sup>2</sup>	60 – 80	0,06 - 0,10	0,10 - 0,16	0,16 - 0,20
Aluminium Alloys (depending on the Si content)	90 – 150	0,08 - 0,12	0,10 - 0,18	0,16 - 0,22