

Project # 206-293

TG Tools United Co.

Performance and Endurance Testing
Cutting Tools

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ISO/IEC 17025 Accredited Laboratory
Certificate Number AT-1119

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Conclusions:

TG KIK,

1. Minor slippage or approximately 20% overall less slip when compared to Hitachi Black drill bit
2. Exceptional roundness and clean entry or greater than 50% cleaner entry when compared to Hitachi Black drill bit
3. No burr remained on edges of holes when compared to Hitachi Black drill bit which contained significant amount of burrs
4. No cracking drilling Acrylic, 150% faster when compared to Hitachi Black drill bit, 690% faster than Dewalt brad Point
5. Approximately 100% faster when compared to Dewalt brad Point and 40% faster when compared to Hitachi Black drill bit in wood

SAMPLE INFORMATION:

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Drill Bits:

TG KIK – ¼" (KIK Point)

Hitachi Black Shield – ¼" (Split Point)

Hitachi Black Gold – 17/64" (Split Point)

DeWalt Brad Point – ¼" (Spur Point)

Test Methods and Procedures:

1. Thin Sheet Metal – Slippage
Draws Squares formed by cross lines
Back material – any wood
Hand Power Tools – Drill straight down
Starts pointing any cross
Scale under wood – 25Lbs pressure, full power

Mechanical TEST DATA AND RESULTS:

Drill Bits: Roundness of Bore Test:

Test material: Stainless steel sheet 0.02” thickness.

Samples of TG KIK produced holes of exceptional roundness.

Samples of Hitachi Black Shield and Hitachi Black Gold caused severe deformation of the test material upon penetration.



TG KIK



Hitachi Black Shield



Hitachi Black Gold

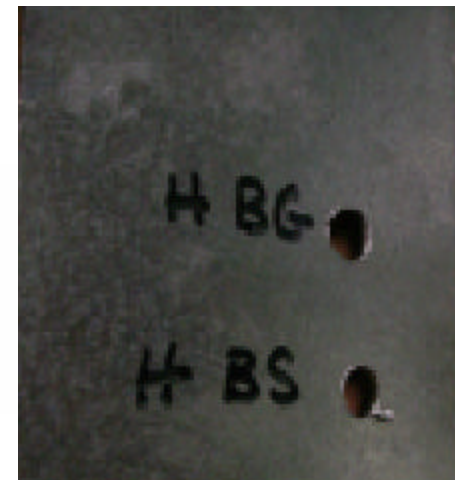
Test Methods and Procedures: “continued”

5. Thicker Sheet Metal – Entry and Exit/Burr
NO back material
Drill Press – Drill straight down
Scale under vise – 25Lbs pressure, 1500RPM

Mechanical TEST DATA AND RESULTS: “Continued”

Drill Bits: Exit Hole Burr Test:

Test material: Stainless steel sheet 0.02” thickness.



The TG KIK produced a consistently round hole with minor burring at the exit

The Hitachi Black Gold produced an elongated hole with moderate burring at the exit.

The Hitachi Black Shield produced a consistently round hole with significant burring at the exit.

Test Methods and Procedures: “continued”

6. Oak – Speed compare
NO back material
Drill Press – Drill straight down

Scale under vise – 25Lbs pressure 1500RPM

Mechanical TEST DATA AND RESULTS: “Continued”

Drill Bits: Cutting Time in Wood:

Test material: Untreated oak board 0.75” thickness.

TG KIK produced a through hole in 1.35 seconds with 13 lbs. force.

Hitachi Black Shield produced a through hole in 1.90 seconds with 13 lbs. force.

DeWalt Brad Point produced a through hole in 3.85 seconds with 13 lbs. force.

Test Methods and Procedures: “continued”

3. Acrylic - Cracking
Hand Power Tools – Drill straight down
Scale under wood – 25Lbs pressure, full power

Mechanical TEST DATA AND RESULTS: “Continued”

Drill Bits: Cutting Time in Acrylic Test:

Test material: Acrylic plate 0.70” thickness.

TG KIK produced a through hole in 1.42 seconds with 30 lbs. force
Hitachi Black Shield produced a through hole in 3.22 seconds with 30 lbs. force
DeWalt Brad Point produced a through hole in 11.16 seconds with 30 lbs. force

Test Methods and Procedures: “continued”

7. Oak – Life
NO back material
Drill Press – Drill straight down
Scale under vise – 25Lbs pressure 1500RPM

Conclusions:

Based on all mechanical and metallurgical testing conducted in this study it is our opinion that TG tools tested in this project are superior in performance and endurance to the competitor’s tools. Furthermore, TG samples exhibited more original conditions after testing than did the competitor’s samples where burning and damage to the competitor’s samples was more significant than the TG samples. This is significant to the tool life where metallurgical wear analysis prove TG tools to be in the order of and estimated two (2) times the life of the competitor’s tools.