



**NEW IN THE**  
**QUAD<sup>+</sup>DRILL<sup>+</sup>**  
**LINE FOR ALUMINUM DRILLING**



Ingersoll's endeavor to manufacture exceptional hole making products continues with the new Chipbreaker for drilling aluminum. The new "HP" Chipbreaker has a polished top surface and is ground peripherally to minimize cutting forces and built-up-edges during drilling on aluminum material. The end user can use each HP insert in the same QuadDrill range of diameters as the existing PH or PH1 inserts.

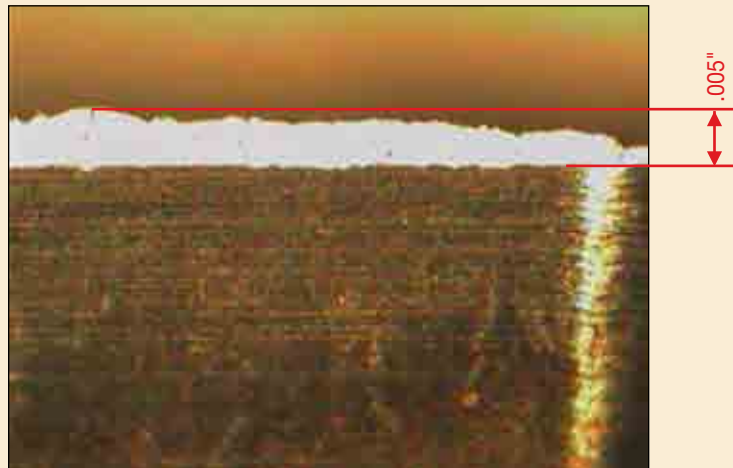
**COMPARISON TEST  
BETWEEN HP AND THE  
PH (PH1) CHIPBREAKER**

Drill: Q0270108N6R01  
Insert: SPLT07T308N-PH IN2005 on both pockets.  
SDGT07T308N-HP IN10K on both pockets.  
Machining Condition:  $V = 1150$  SFM,  $f = 0.008$  in/rev.  
Workpiece: AC4C ( Si 6%) Aluminum

BUILT-UP EDGE ON EACH CHIPBREAKER AFTER 200 INCH DRILLING.



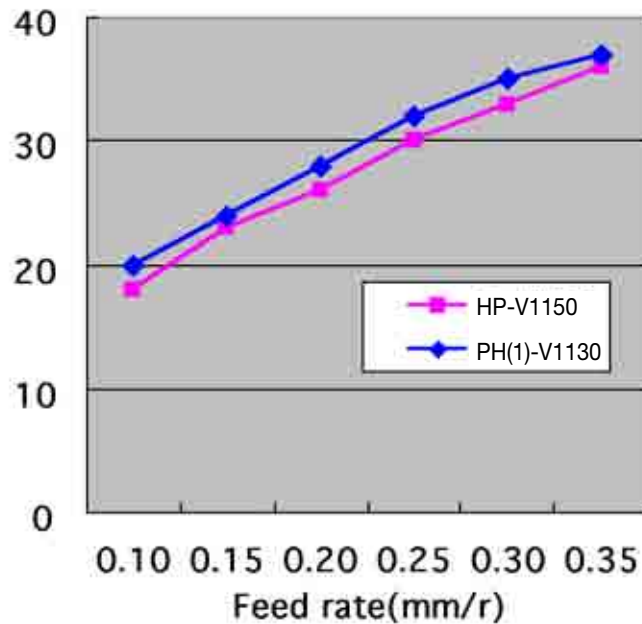
From SPLT07T308N-PH IN2005  
Insert in central pocket.



From SDGT07T308N-HP IN10K  
Insert in central pocket.

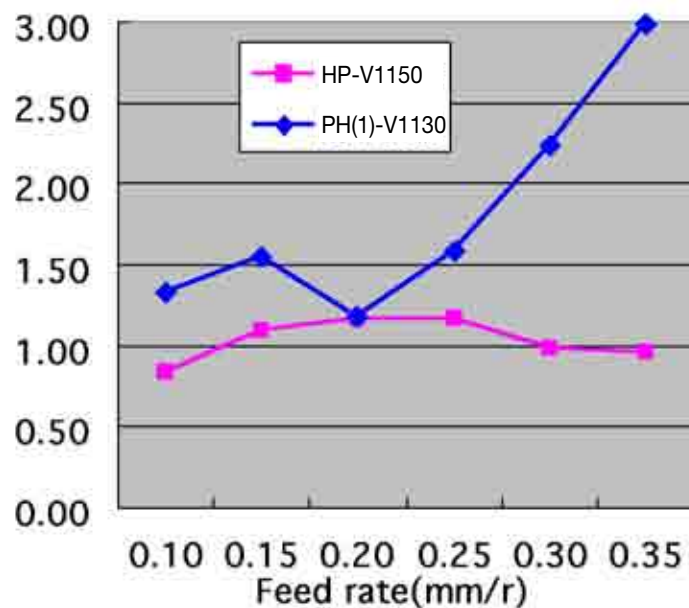
It is almost impossible to avoid formation of built-up edges when drilling on aluminum, but as the above shows, the HP can minimize it's formation with polished top surface and sharp edge ground peripherally.

**CUTTING FORCE COMPARISON BETWEEN PH (PH1) VS HP PER FEED RATE.**



HP can reduce cutting forces by a minimum of 2% compared to the PH (PH1), when drilling aluminum.

**SURFACE FINISH COMPARISON DRILLED WITH PH (PH1) AND HP PER EACH FEED RATE.**

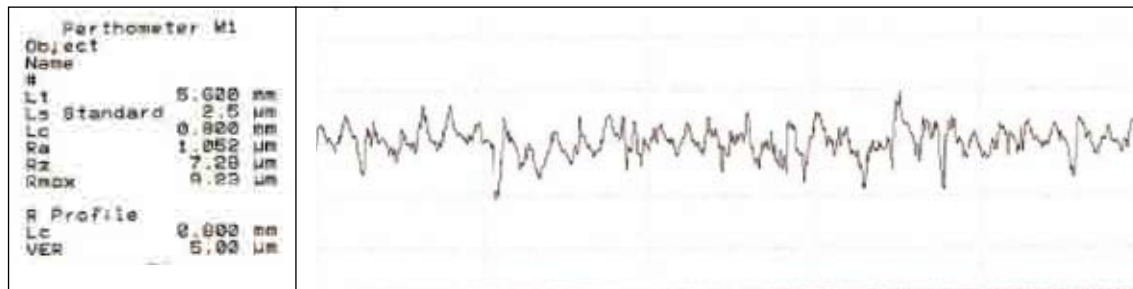
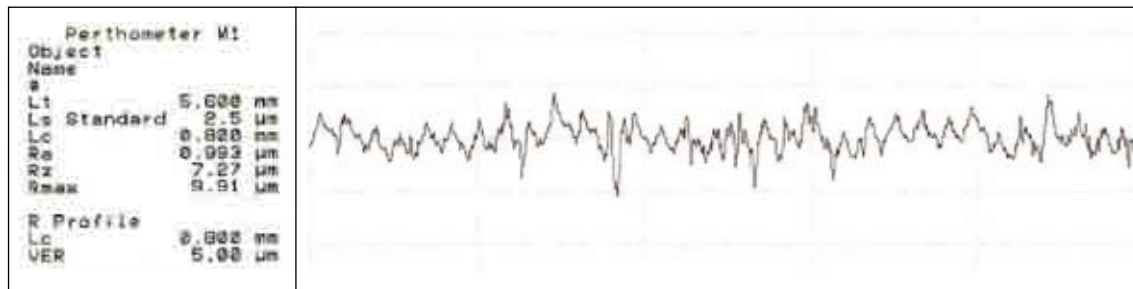


**SURFACE FINISH**



HP can achieve much better surface finish at high feed rate.

Drilled with HP at V=1150 sfm

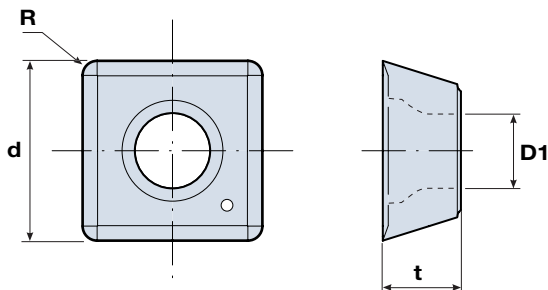


This demonstrates that the HP works on aluminum successfully and can achieve these advantages against PH (PH1) Chipbreaker:

- A. Tool life is increased by apprximately 4 times
- B. Improved hole surface & tolerance.
- C. Reduced cutting force by 2% minimum.

TABLE OF INSERTS - INSERTS FOR ALUMINUM ALLOY

■ SHGT/SDGT □□□□□□ HP



Designation	Dimensions (inches)				Drill range	Grade
	d	t	R	ØD1		
SHGT050204-HP	.200	.094	.016	.089	.50 - .594	○
SHGT060204-HP	.289	.094	.016	.103	.625 - .813	○
SDGT07T308-HP	.315	.156	.031	.112	.843 - 1.063	○
SHGT090408-HP	.389	.169	.031	.159	1.094 - 1.312	○
SHGT110408-HP	.453	.189	.031	.175	1.343 - 1.625	○
SDGT140512-HP	.563	.205	.097	.226	1.687 - 2.000	○