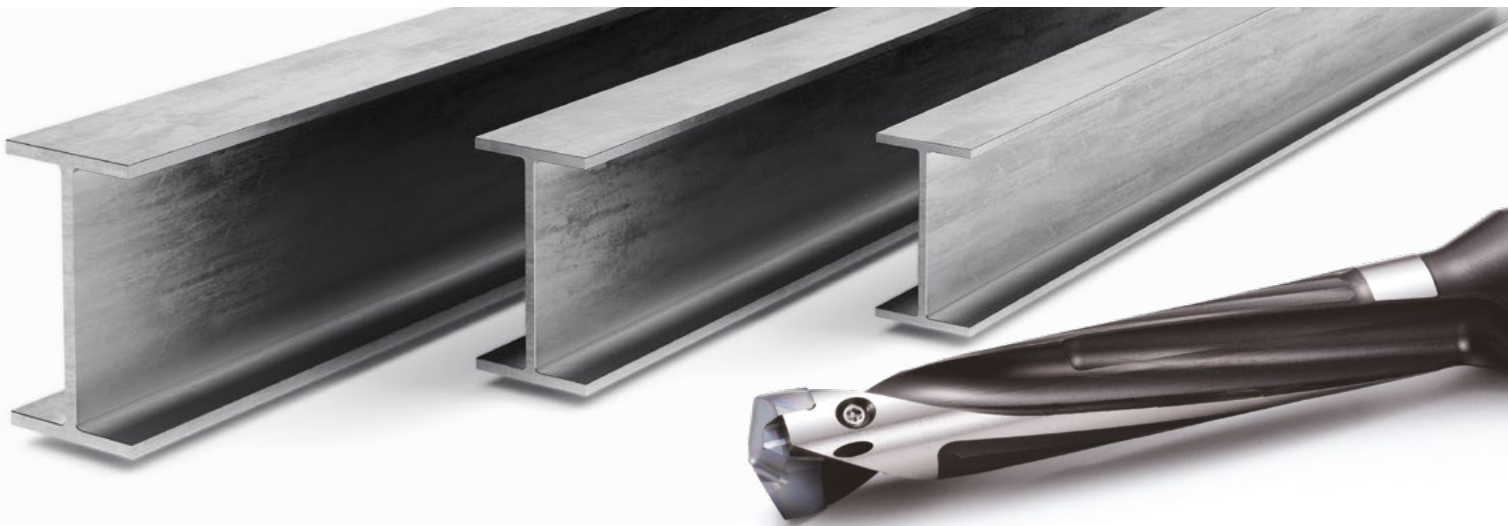


# MagicDrill **DRA**



High efficient and reliable drilling in structural steel beam

Optimal web thickness limits deflection

Easy insert replacement

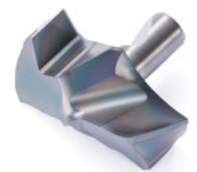
Insert sizes: DC = 7.94 mm - 33.00 mm

Toolholder L/D: 1.5D - 12D

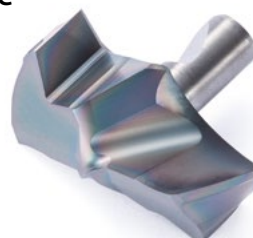
1st choice  
for general  
machining  
**GM**



For minimal  
burr creation  
**FTP**



**NEW**  
Best performance  
in steel beam  
**FTP-H**



Full lineup

High efficient steel beam drilling

# MagicDrill DRA

Excellent hole accuracy with a low cutting force design

Fine chip breaking and smooth deep hole cutting

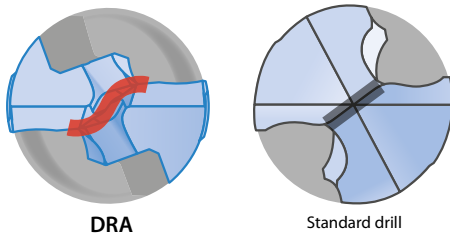
New FTP-H insert available for best performance in steel beam drilling



## 1 Low cutting force design improves hole accuracy

Special chisel edge with S-curve reduces thrust force and controls vibration

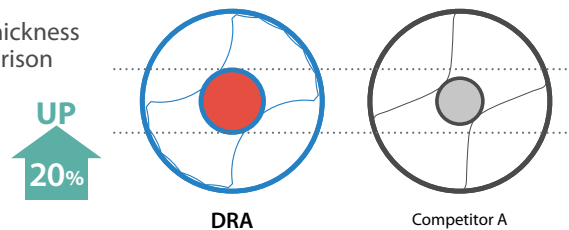
Cutting edge image



## 2 Optimal web thickness limits deflection

Improved hole accuracy by controlling drill deflection with a 20% thicker web compared with Competitor A

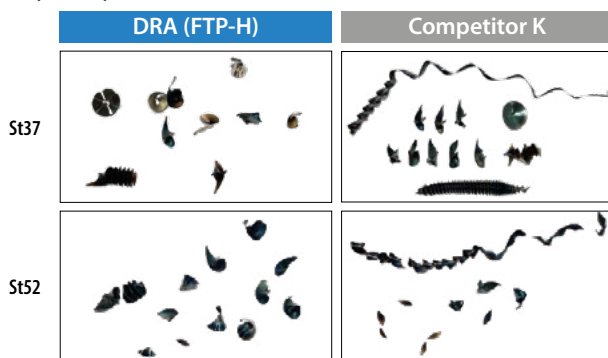
Web thickness comparison



## 3 Optimized chip control

Optimized chip thinning for stable chip evacuation

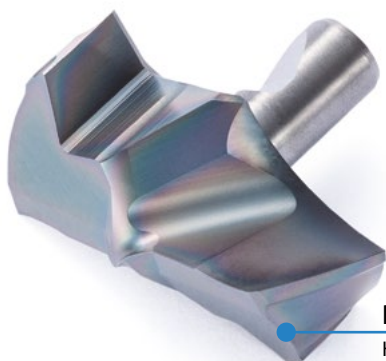
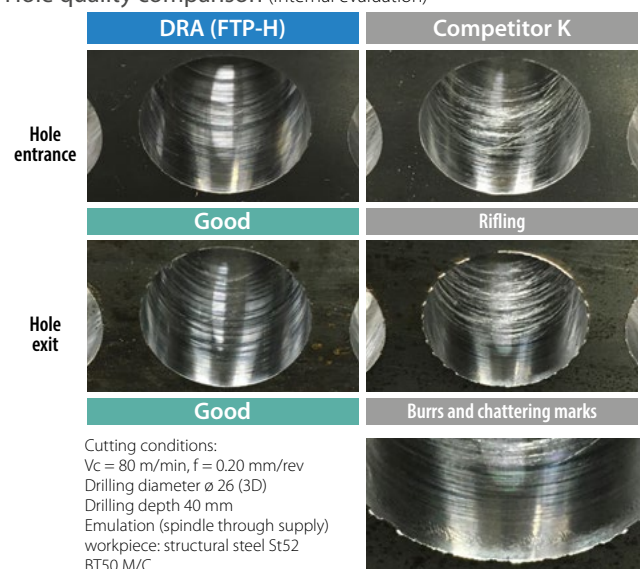
Chip comparison (Internal evaluation)



## 4 Excellent surface finish

Controlled chips reduce scratches on the hole wall


Hole quality comparison (Internal evaluation)



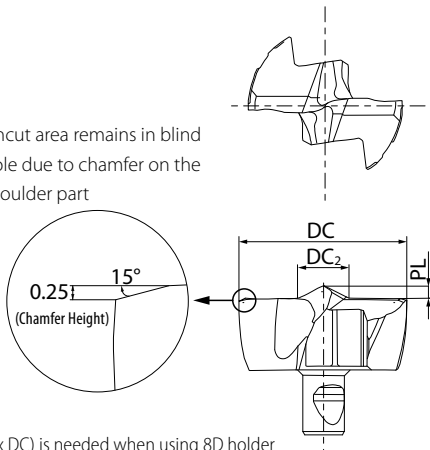
**Reinforced chamfer**  
Higher rigidity of insert

**FTP-H has excellent properties providing superior hole accuracy.**

# DRA insert (FTP-H - steel beam drilling) Drilling diameter $\varnothing 14.00 \sim \varnothing 26.00$



Uncut area remains in blind hole due to chamfer on the shoulder part



### k8 tolerance

DC	k8(mm)
14.00 ~ 18.00	+0.027 0
20.00 ~ 26.00	+0.033 0

k8 is the dimension tolerance of the insert  
It is not the tolerance of the cutting diameter

Note  
Applicable to 1.5D, 3D, 5D and 8D holders, Prepared hole (0.5 x DC) is needed when using 8D holder

1st recommendation

Steel / PR1535

## Insert

Description	Dimensions (mm)			Grade PR1535	Applicable toolholder
	DC	DC <sub>2</sub>	PL		
DA1400M-FTP-H	14	4.20	0.60	●	SS16-DRA140M-○ SF16-DRA140M-○
DA1600M-FTP-H	16	4.60	0.70	●	SS18-DRA160M-○ SF20-DRA160M-○
DA1800M-FTP-H	18	5.00	0.80	●	SS20-DRA180M-○ SF25-DRA180M-○
DA2000M-FTP-H	20	5.70	0.90	●	SS25-DRA200M-○ SF25-DRA200M-○
DA2100M-FTP-H	21	6.00	0.95	●	SS25-DRA210M-○ SF25-DRA210M-○
DA2200M-FTP-H	22	6.40	1.00	●	SS25-DRA220M-○ SF25-DRA220M-○
DA2400M-FTP-H	24	6.80	1.10	●	SS25-DRA240M-○ SF25-DRA240M-○
DA2600M-FTP-H	26	7.00	1.20	●	SF25-DRA250M-○ SS32-DRA250M-○



Full lineup

Please note that the insert DA2600M-FTP-H should be mounted on toolholder size S...-DRA250M-○ type only.

Inserts sold in 1 piece boxes  
●: Available

## Case Study

### Structure part S355

$V_c = 80 \text{ m/min}$  ( $n = 979 \text{ min}^{-1}$ ),  
 $f = 0.2 \text{ mm/rev}$  ( $V_f = 196 \text{ mm/min}$ ),

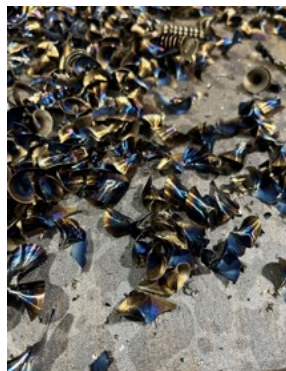
Drilling depth 15 mm, through-hole  
Coolant = Oil mist lubrication

SF25-DRA250M-3  
DA2600M-XFTP PR1535

Competitor K:  $\varnothing 26\text{-}3\text{D}$

**FTP-H achieved tool life of 45 m  
without any problem.**

**Shortened process time.  
Good chip control.**



## DRA Toolholder $\phi 7.94$ mm - 33.00 mm

1.5D

3D

5D

8D



(Straight shank)



(with flange)

12D



**NEW**

### Double margin type

High-precision Insert for steel machining

**HQP**

Special two-step bottom and double margin  
Reduces shock for higher-precision machining of steel



Drilling diameter  
 $\phi 7.94 \sim \phi 19.9$

**PR1525**

For difficult-to-cut materials/  
Stainless steel machining

**HQS**

Special two-step bottom and double margin  
Improving stability of difficult-to-cut materials and stainless steel during machining operations



Drilling diameter  
 $\phi 8.00 \sim \phi 19.5$

**PR1535**

### General purpose

For steel/stainless steel machining  
1st recommendation

**GM**

For a wide range of drilling applications  
Special chisel edge reduces thrust force and controls vibration  
Excellent hole accuracy



Drilling diameter  
 $\phi 7.94 \sim \phi 33$

**PR1535**

**PR1525**

For counterboring

**FTP**

Solves problems at counterboring  
Improved hole accuracy with pilot point geometry and double margin specifications



Drilling diameter  
 $\phi 8.00 \sim \phi 25.4$

**PR1535**

**PR1525**

### Case Study

#### Structure part S390

$V_c = 50.2$  m/min ( $n = 888$  min<sup>-1</sup>),  
 $f = 0.247$  mm/rev ( $V_f = 220$  mm/min),

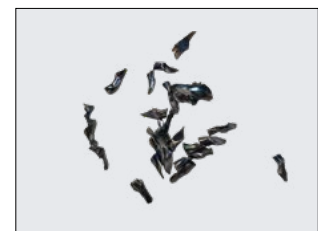
Drilling depth 40 mm, through-hole  
Coolant = MQL

SF25-DRA180M-5  
DA1800M-GM PR1535

Competitor K:  $\phi 18$ -5D



Competitor K



DRA

DRA produced finer chips and maintained stable machining and excellent surface finish with less cutting noise.

(User evaluation)