

HOLEMAKING

61-2024

DECEMBER 2024

METRIC

NPA

New Product Announcement



Double Sided
Insert



Cost Effective
Inserts



High Productivity



TANGREAMER
EASY LINE

New Indexable Reamers with Tangential Inserts NO-SETUP TIME

METRIC



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Highlights

**New TANG-REAMER for Cast Iron and Steel.
Easy to Use, No Setup Time!**

Features

Pre-adjusted reamers, that mount 4 right-hand cutting edged tangential inserts, for high hole surface quality and for achieving tight tolerances.

Semi-standard reamers are available in the diameter range of $\varnothing 25$ - $\varnothing 120$ mm in lengths of up to 200mm. Other dimensions can be supplied on request. TR LNQT... inserts feature 4 cutting edges, made of IC907 and IC910 - first choice for cast iron - and IC930N - first choice for steel.

The reamer is preadjusted with a nominal diameter and supplied with an additional seat to increase the nominal diameter + 0.006mm for insert sizes 19mm, and 0.004mm for insert size 12mm.

An additional seat set is available on request to adjust the nominal diameter ± 0.010 mm.

* Minimum hole tolerance 0.020mm.

Advantages

- Direct insert mounting - no adjustment needed for accurate hole diameter
- No setup time
- High hole diameter accuracy IT7
- Suitable for cast iron and steel

[Click for Short Video](#)

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Machined Materials

Mainly ISO P (steel, ferritic and martensitic stainless steel) and ISO K (cast iron) groups of application.

Advantages

- Productivity: high metal removal rates.
- Economical: inserts with 4 helical cutting edges.
- Reliability: high process stability.

Marketing

The new tool family offers distinct technical advantages and a very attractive price per cutting edge.

Cutting Data

The table below is intended to help define initial feed rates.

For initial cutting speed refer to ISCAR's recommendations regarding carbide grades. For machining under unstable conditions, the recommended feed per tooth should be reduced by 20-30%.

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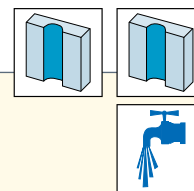
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TRD-CE-12

Semi-Standard Reamers



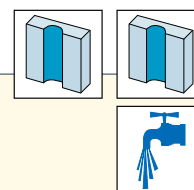
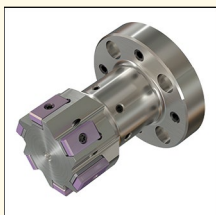
Designation	DF	DC	Lmax	NOF ⁽¹⁾
TRD###-##-###C#E-12	20.00	25.00 up to 40.00	220	6
TRD###-##-###C#E-12	25.00	32.01 up to 40.00	270	6
TRD###-##-###C#E-12	32.00	40.01 up to 50.00	270	6-8

⁽¹⁾ Number of flutes

* Other dimensions available on request

TRD-E-19

Semi-Standard Reamers

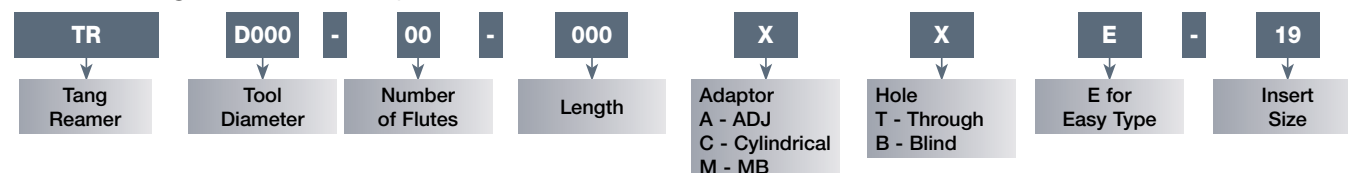


Designation	DF	DC	Lmax	NOF ⁽¹⁾
TRD###-##-#####E-19	70.00	50.01 up to 70.00	125.00 & 175.00	6
TRD###-##-#####E-19	100.00	70.01 up to 100.00	150.00 & 200.00	6-8

⁽¹⁾ Number of flutes

* Other dimensions available on request

Holder Designation Code Key



Designation Example

TRD036-06-180CTE-12

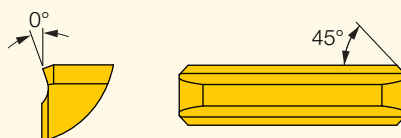
TANGREAMER EASY LINE

Insert Designation Code Key

TR	LNQT	-	1203	-	A5S	IC930N
Tang Reamer	Q - for Easy Version		Insert Size 1203 or 1904		Geometry	Carbide Grade IC907 or IC930N

TR-LNQT A1S

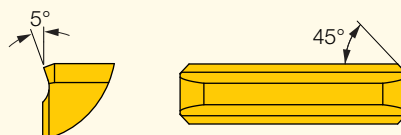
4 Right-Hand Cutting Edges Semi-Standard Inserts for Tang Easy Reamers, for Cast Iron



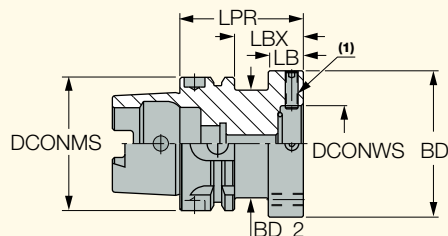
Designation	Dimensions			Tough ↔ Hard	
	a°	l	S	IC907	IC930N
TR-LNQT 1904-A1S	0	19	4	•	•

TR-LNQT A5T

4 Right-Hand Cutting Edges Semi-Standard Inserts for Tang Easy Reamers, for Through Hole in Steel and Stainless Steel



Designation	Dimensions			Tough ↔ Hard		
	a°	l	S	IC907	IC910	IC930N
TR-LNQT 1203-A5T	5	12	3		•	•
TR-LNQT 1904-A5S	5	19	4	•		•

TANGREAMER
EASY LINE**ADJ HSK A**FINEFIT Center Alignment Shank and Base with
a DIN69893 HSK Tapered Shank<https://www.iscar.com/eCatalog/Family.aspx?fnum=2374&mapp=IT&GFSTYP=M&srch=1>

Designation	SS	L	L1	L3	d2	D1
ADJ HSK A50 D70 ⁽¹⁾	50	60.00	34.00	18.00	35.00	70.00
ADJ HSK A63 D70	63	60.00	34.00	18.00	35.00	70.00
ADJ HSK A63 D100 ⁽¹⁾	63	65.00	39.00	23.00	50.00	100.00
ADJ HSK A63 D117 ⁽¹⁾	63	65.00	39.00	23.00	60.00	117.00
ADJ HSK A80 D70 ⁽¹⁾	80	60.00	34.00	18.00	35.00	70.00
ADJ HSK A80 D100 ⁽¹⁾	80	65.00	39.00	20.00	50.00	100.00
ADJ HSK A80 D117 ⁽¹⁾	80	65.00	39.00	20.00	60.00	117.00
ADJ HSK A100 D70	100	55.00	26.00	-	35.00	70.00
ADJ HSK A100 D100 ⁽¹⁾	100	65.00	36.00	20.00	50.00	100.00
ADJ HSK A100 D117 ⁽¹⁾	100	65.00	36.00	20.00	60.00	117.00
ADJ HSK A100 D140 ⁽¹⁾	100	75.00	46.00	20.00	80.00	140.00

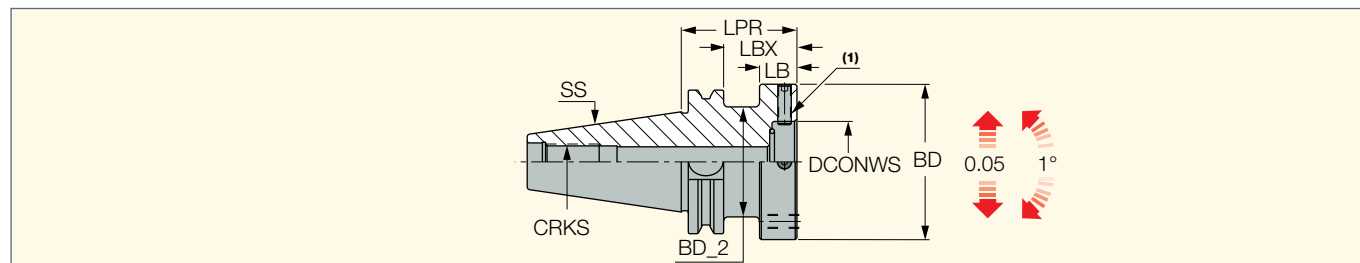
⁽¹⁾ Available on Request via Iscar Italy - Wertec

TANGREAMER EASY LINE

ADJ DIN69871

FINEFIT Center Alignment Shank and Base with
a DIN 69871 Form AD Tapered Shank

<https://www.iscar.com/eCatalog/Family.aspx?fnum=2218&mapp=IT&GFSTYP=M&srch=1>



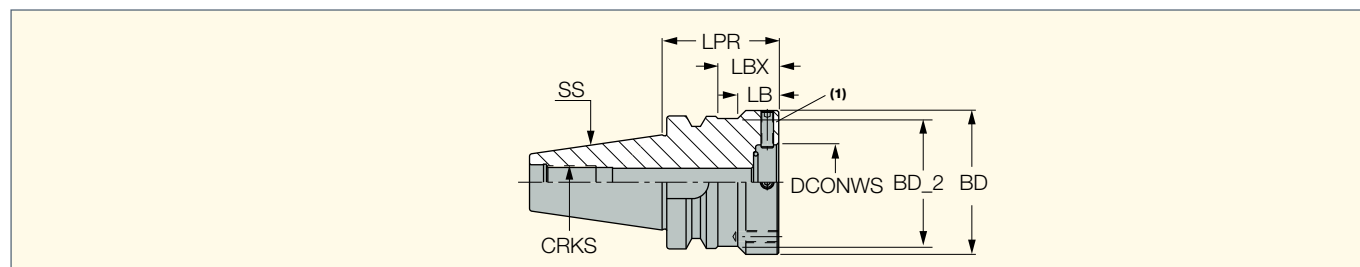
Designation	SS	d2	L	L1	L3	D1
ADJ DIN69871 40 D70	40	35.00	50.00	30.9	15.00	70.00
ADJ DIN69871 40 D100 ⁽¹⁾	40	50.00	60.00	40.9	25.00	100.00
ADJ DIN69871 50 D70	50	35.00	50.00	30.9	-	70.00
ADJ DIN69871 50 D100 ⁽¹⁾	50	50.00	60.00	40.9	25.00	100.00
ADJ DIN69871 50 D117 ⁽¹⁾	50	60.00	60.00	40.9	23.00	117.00
ADJ DIN69871 50 D140 ⁽¹⁾	50	80.00	60.00	40.9	20.00	140.00

⁽¹⁾ Available on Request via Iscar Italy - Wertec

ADJ BT

Center Alignment Shank and Base with a
BT MAS-403 ADB Tapered Shank

<https://www.iscar.com/eCatalog/Family.aspx?fnum=1939&mapp=IT&app=0&GFSTYP=M>



Designation	SS	L	L1	L3	D1	d2
ADJ BT40 D70	40	55.00	28.0	18.00	70.00	35.00
ADJ BT40 D100 ⁽¹⁾	40	60.00	49.4	25.00	100.00	50.00
ADJ BT50 D70	50	70.00	32.0	-	70.00	35.00
ADJ BT50 D100 ⁽¹⁾	50	70.00	39.3	30.30	100.00	50.00
ADJ BT50 D117 ⁽¹⁾	50	80.00	42.0	42.00	117.00	60.00
ADJ BT50 D140 ⁽¹⁾	50	80.00	42.0	42.00	140.00	80.00

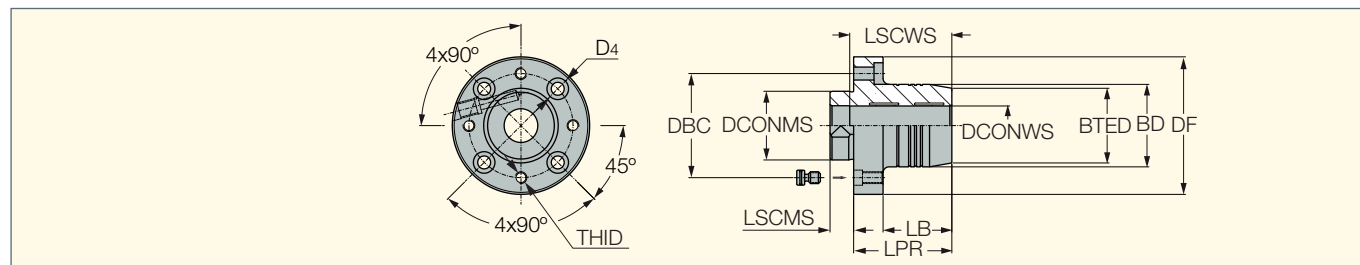
⁽¹⁾ Available on Request via Iscar Italy - Wertec

TANGREAMER EASY LINE

ADJ HYDRO

Radial and Angular Adjustable Hydraulic Flanges

<https://www.iscar.com/eCatalog/Family.aspx?fnum=2781&mapp=IT&app=0&GFSTYP=M>

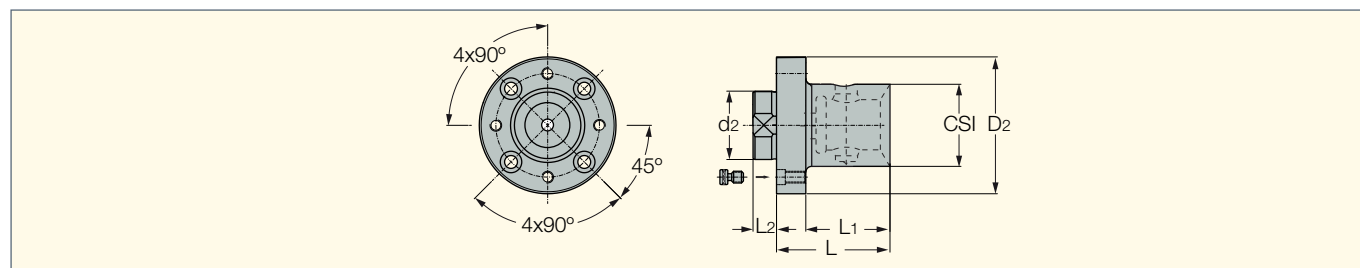


Designation	d	d2	D3	D2	L	L1	Lmin	L2
ADJ HYDRO 20 D70	20.00	35.00	42.00	70.00	50.00	35.0	52.0	10.00
ADJ HYDRO 25 D100 ⁽¹⁾	25.00	50.00	50.00	100.00	100.00	76.0	58.0	12.00
ADJ HYDRO 32 D100 ⁽¹⁾	32.00	50.00	60.00	100.00	103.00	79.0	62.0	12.00

• Available on Request via Iscar Italy - Wertec

ADJ MB

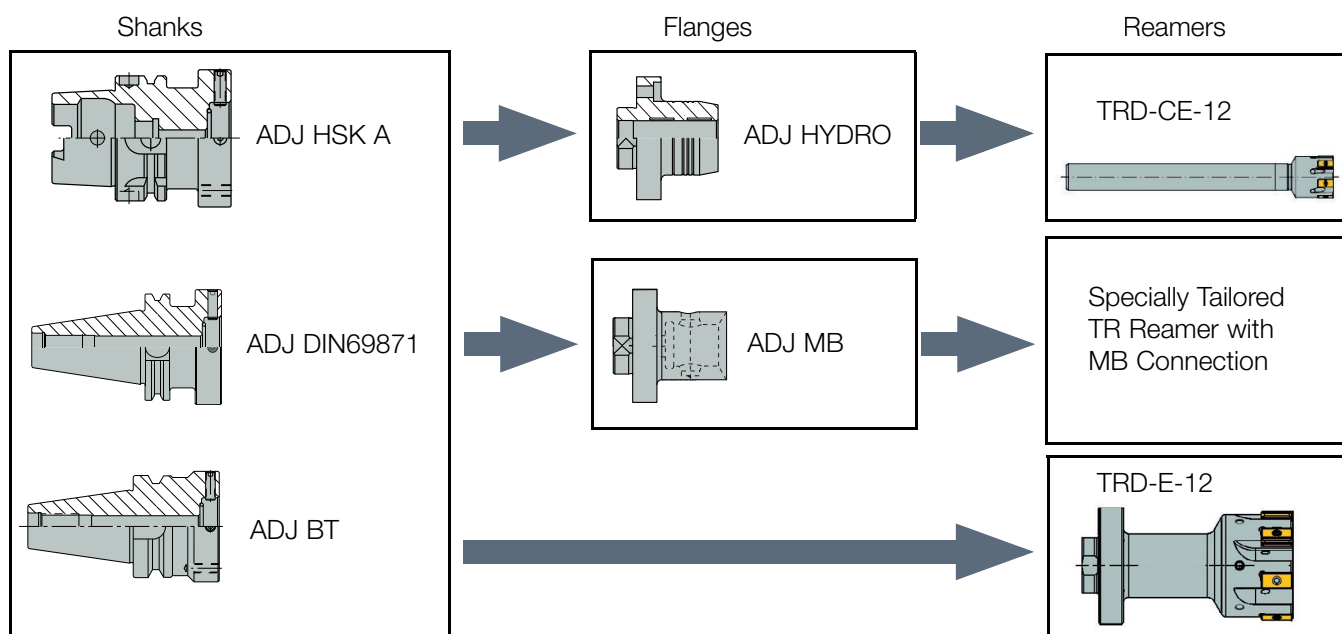
Radial and Angular Adjustable Hydraulic Flanges



Designation	CSI	d2	D2	L	L1	L2
ADJ MB 63 D100 ⁽¹⁾	MB63	50.00	100.00	62.00	39.0	12.00

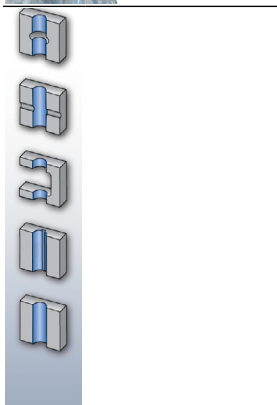
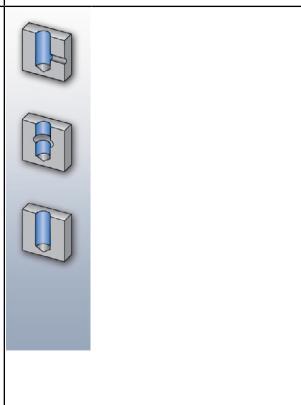
• Available on Request via Iscar Italy - Wertec

The TANG EASY REAMER System



TANGREAMER
EASY LINE

Applications

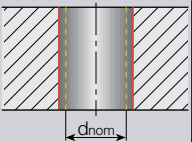
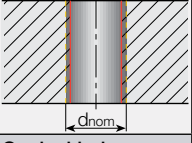
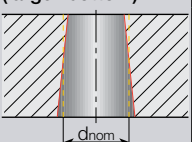
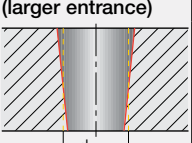
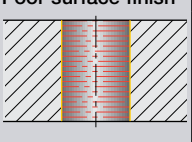
Through Hole	Blind Hole
	
	
Through Hole Short Flute Holder. This holder has a lateral coolant outlet located right above the insert. The coolant is pointed directly to the cutting edge for lubrication purposes and upward chip diversion.	Blind Hole Long Flute Holder. This holder has a frontal coolant outlet. The liquid reaches the bottom of the blind hole and evacuates the chips. The chips are conveyed backwards through the long chip gullet (flute) of the holder.

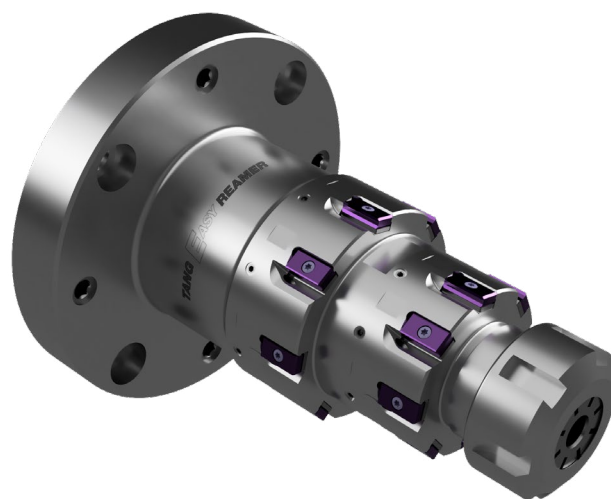
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Troubleshooting

Problem	Cause	Solution
Hole too large 	- Reamer or pilot hole not centered - Reamer too large - Cooling / lubrication problems	- Use a floating reamer chuck or correct pilot hole - Check size of reamer and correct if necessary - Change lubricant and increase coolant pressure
Hole too small 	- Worn reamer - Reaming allowance too small - Cooling / lubrication problems	- Replace the reamer - Increase reaming allowance - Change lubricant and increase coolant pressure
Conical hole (larger bottom) 	Misalignment between pre hole and reamer centers	Re-align or use a floating reamer chuck
Conical hole (larger entrance) 	- Misalignment between pre-hole and reamer centers - Material jammed between reamer and hole in the upper hole section	- Re-align or use a floating reamer chuck - Secure the tool axially
Poor surface finish 	- Worn reamer - Misalignment between pre-hole and reamer centers - Problems with chip evacuation - Incorrect cutting parameters - Built-up edge	- Replace the tool - Re-align or use a floating reamer chuck - Increase coolant pressure - Change cutting parameters - Change cutting parameters or coolant conditions



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Tang Easy Reamer Cutting Conditions

The cutting conditions in the table below should be used to start a new application. Optimal conditions for a specific application should be evaluated by examining the results and changing the machining conditions accordingly.

Material No.	Material	Ø Tool [mm]	Stock to be Removed [mm]	Feed [mm/t]	Cutting Speed V _c [m/min]		
					IC907 / IC910		IC930N
					Unstable	Stable	
1-5	non-alloy steel and cast steel, free cutting steel	25-32	0.15 - 0.25	0.10 - 0.15	60 - 100	110 - 140	180 - 200
		32-50	0.25 - 0.35	0.12 - 0.20			
		>50	0.25 - 0.35	0.15 - 0.25			
6-9	low alloy and cast steel (less than 5% of alloying elements)	25-32	0.15 - 0.25	0.10 - 0.15	60 - 100	110 - 140	140 - 160
		32-50	0.25 - 0.35	0.12 - 0.20			
		>50	0.25 - 0.35	0.15 - 0.25			
10-11	high alloyed steel, cast steel and tool steel	25-32	0.15 - 0.25	0.10 - 0.15	50 - 90	90 - 130	110 - 140
		32-50	0.25 - 0.35	0.12 - 0.20			
		>50	0.25 - 0.35	0.15 - 0.25			
12-13	stainless steel and cast steel	25-32	0.15 - 0.25	0.10 - 0.15	30 - 50	60 - 90	90 - 120
		32-50	0.25 - 0.35	0.12 - 0.20			
		>50	0.25 - 0.35	0.15 - 0.25			
15-16	gray cast iron (GG)	25-32	0.15 - 0.25	0.10 - 0.15	60 - 100	150 - 200	160 - 220
		32-50	0.25 - 0.35	0.12 - 0.20			
		>50	0.25 - 0.35	0.15 - 0.25			
17-18	nodular cast iron (GGG)	25-32	0.15 - 0.25	0.10 - 0.15	50 - 80	130 - 180	150 - 200
		32-50	0.25 - 0.35	0.12 - 0.20			
		>50	0.25 - 0.35	0.15 - 0.25			
19-20	malleable cast iron	25-32	0.15 - 0.25	0.10 - 0.15	50 - 80	100 - 160	140 - 180
		32-50	0.25 - 0.35	0.12 - 0.20			
		>50	0.25 - 0.35	0.15 - 0.25			
21-22	aluminum wrought alloy						
23-25	aluminum-cast, alloyed						
26-28	copper alloys	All	0.25 - 0.35	0.10 - 0.20			100 - 150
29-30	non-metallic						



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TEST REPORTS

Case Story 1

Application: Reaming H7 through holes

a_p: 0.3mm/diameter

Material: 42 Ni Cr

Coolant: Emulsion 30 bar

Target: Lower cost per part

Piece: Rocker arm

	Competitor	ISCAR
Tool Type	Brazed Interchangeable Head Reamer, Cermet Coated	Tang Easy Reamer
Insert	-	TR-LNQT 1904-A5T IC930N
Zeff	8	6
Cutting Speed (m/min)	200	200
Feed (mm/rev)	0.9	0.9
Depth of Hole (mm)	50	50
Head Diameter (mm)	52	52
Holes per Edge	3000 (150.000 mm)	3500 (175.000 mm)
Reaming Time, in-out (min)	2.7	2.7
Cost per Part	0.09 €	0.01 €

Case Story 2

Application: Reaming H7 through holes

a_p: 0.25mm/diameter

Material: GGG 50

Coolant: emulsion 20 bar

Target: Reliability - Lower machining cost

	Competitor	ISCAR
Tool Type	Brazed Interchangeable Head Reamer	Tang Easy Reamer
Insert	-	TR-LNQT 1203-A5S IC907
Zeff	6	6
Cutting Speed (m/min)	40	40
Feed (mm/rev)	0.9	0.9
Depth of Hole (mm)	25+20=45	25+20=45
Head Diameter (mm)	27	27
Holes per Edge	3000 (150.000 mm)	3500 (175.000 mm)
Reaming Time, in-out (min)	6.4	6.4
Cost per Part	0.09 €	0.01 €

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EASY LINE

TEST REPORTS

Case Story 3

Application: Reaming H7 through holes

a_p: 0.3mm/diameter

Material: C40

Coolant: Emulsion 30 bar

Target: Lower machining cost

	Competitor	ISCAR
Tool Type	Brazed Interchangeable Head Reamer	Tang Easy Reamer
Insert	-	TR-LNQT 1203-A5S IC907
Zeff	6	6
Cutting Speed (m/min)	130	130
Feed (mm/rev)	0.9	0.9
Depth of Hole (mm)	15	15
Head Diameter (mm)	28	28
Holes per Edge	3000 (45.000 mm)	3500 (45.000 mm)
Reaming Time, in-out (min)	0.67	0.67
Cost per Part	0.11 €	0.11 €

Case Story 4

Application: Reaming J7 blind holes

a_p: 0.40mm/diameter

Material: GG25

Coolant: Emulsion 50 bar

Target: Lower machining cost

	Competitor	ISCAR
Tool Type	Interchangeable Head Reamer, Carbide Coated	Tang Easy Reamer
Insert	-	TR LNQT 1904-A1S IC907
Zeff	8	8
Cutting Speed (m/min)	100	160
Feed (mm/rev)	1.9	1.2
Depth of Hole (mm)	40	40
Head Diameter (mm)	72	72
Holes per Edge	800 (32.000 mm)	500 (20.000 mm)
Reaming Time, in-out (min)	2.85	3.40
Cost per Part	0.48 €	0.12 €