KOMET USA

Dihart Reaming

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TOOLS PLUS IDEAS

Introduction

- Dihart® tool selection
- Dihart® Program overview Chart
- Reamax® TS
- Reamax®
- Monomax® expandable
- Monomax® solid
- Solid carbide Reamer (Fullmax)
- Cutting Ring
- PCD Reamer
- Special Tools (Insert Reaming / Easy Special)
- DAH® Holder
- Preferred Diameter Range / ASG / Performance Data

Dihart® tool selection

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Step 1: **Diameter and Tolerance Selection** – Using your applications bore diameter and tolerance, select an IT class from charts below.

Numerical values for tolerance grades in 0.001 mm

Nominal dimension range	IT tolerance class									
	IT 1	IT 2	IT 3	IT 4	IT 5	IT 6	IT 7	IT 8	IT 9	IT 10
1 – 3 mm	0.8	1.2	2	3	4	[illegible]	[illegible]	14	25	40
> 3 – 6 mm	1	1.5	2.5	4	5	[illegible]	[illegible]	18	30	48
> 6 – 10 mm	1	1.5	2.5	4	6	[illegible]	[illegible]	22	36	58
> 10 – 18 mm	1.2	2	3	5	8	[illegible]	[illegible]	27	43	70
> 18 – 30 mm	1.5	2.5	4	6	9	[illegible]	[illegible]	33	52	84
> 30 – 50 mm	1.5	2.5	4	7	11	16	[illegible]	39	62	100
> 50 – 80 mm	2	3	5	8	13	19	[illegible]	46	74	120
> 80 – 120 mm	2.5	4	6	10	15	22	35	54	87	140
> 120 – 180 mm	3.5	5	8	12	18	25	40	63	100	160
> 180 – 250 mm	4.5	7	10	14	20	29	46	72	115	185
> 250 – 315 mm	6	8	12	16	23	32	52	81	130	210

- Example 1: If your application is Ø 32.5 mm with a total tolerance of 0.020 mm, this will be an IT 6 class.
- Example 2: If your application is Ø 110 mm with a total tolerance of 0.035 mm, this will be an IT 7 class.

Numerical values for tolerance grades in inch

Nominal dimension range	IT tolerance class									
	IT 1	IT 2	IT 3	IT 4	IT 5	IT 6	IT 7	IT 8	IT 9	IT 10
0.039 – 0.118	0.00003	0.00005	0.00008	0.00012	0.00016	0.00024	0.00039	0.00055	0.00098	0.00158
> 0.118 – 0.236	0.00004	0.00006	0.00010	0.00016	0.00020	0.00032	0.00047	0.00071	0.00118	0.00189
> 0.236 – 0.394	0.00004	0.00006	0.00010	0.00016	0.00024	0.00035	0.00059	0.00087	0.00142	0.00228
> 0.394 – 0.709	0.00005	0.00008	0.00012	0.00020	0.00032	0.00043	0.00071	0.00106	0.00169	0.00276
> 0.709 – 1.181	0.00006	0.00010	0.00016	0.00024	0.00035	0.00051	0.00083	0.00130	0.00205	0.00331
> 1.181 – 1.968	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00063	0.00098	0.00154	0.00244	0.00394
> 1.968 – 3.150	0.00008	0.00012	0.00020	0.00032	0.00051	0.00075	[illegible]	0.00181	0.00291	0.00472
> 3.150 – 4.724	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00138	0.00213	0.00343	0.00551
> 4.724 – 7.087	0.00014	0.00020	0.00032	0.00047	0.00071	0.00098	0.00158	0.00248	0.00394	0.00630
> 7.087 – 9.842	0.00018	0.00028	0.00039	0.00055	0.00079	0.00114	0.00181	0.00284	0.00453	0.00728
> 9.842 – 12.402	0.00024	0.00032	0.00047	0.00063	0.00091	0.00126	0.00205	0.00319	0.00512	0.00827

- Example 1: If your application is Ø 1.357 inch with a total tolerance of 0.0008 inch, this will be an IT 6 class.
- Example 2: If your application is Ø 4.250 inch with a total tolerance of 0.0015 inch, this will be an IT 7 class.

Dihart® tool selection

Step 2: Tool Selection – Based on diameter and tolerance required, choose recommended tool series.

- **Example 1:** Diameter 20 H7 to be machined recommends Reamax® TS System or Monomax® Expandable
- **Example 2:** Diameter 1.7500" ± 0.0010"(IT8) to be machined recommends Reamax® TS System

Tool series selection based on IT-tolerance

IT-Tolerance	Ø 0.0551 – 0.2204 in (Ø 1.40 – 5.59 mm)	Ø 0.2205 – 0.4720 in (Ø 5.60 – 11.99 mm)	Ø 0.4721 – 0.7083 in (Ø 12.00 – 17.99 mm)	Ø 0.7084 – 1.5748 in (Ø 18 – 40 mm)	Ø 1.5748 – 2.5591 (Ø 40 – 65 mm)	Ø 2.5591 – 4.3307 in (Ø 65 – 110 mm)
IT 5 – IT 6	Solid carbide reamer	Monomax® expandable	Monomax® expandable	Reamax® TS / Monomax® expandable	Reamax® TS	Cutting ring
IT 7	Solid carbide reamer	Monomax® expandable	Reamax® / Monomax® expandable	Reamax® TS / Monomax® expandable	Reamax® TS	Cutting ring
≥ IT 8	Solid carbide reamer	Solid carbide reamer / Monomax® solid	Reamax® / Monomax® solid	Reamax® / Monomax® solid	Reamax® TS	Cutting ring

Note: For bore tolerance ≤ IT7; Expandable tooling is recommended for wear compensation. Generally, bore tolerances < IT5 should be machined by another process other than reaming

Standard reamers overview

Series	Tool connection
Reamax® TS	Cylindrical shank DAH® ABS®
Reamax®	Cylindrical shank
Monomax®- expandable	Cylindrical shank
Monomax®- solid	Cylindrical shank
Solid carbide reamer	Cylindrical shank
Cutting ring	Cylindrical shank DAH® ABS®
PCD reamer	Cylindrical shank

Dihart® tool selection

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Step 3: Tool Recommendation – According to the type of bore and material to be machined, you will be guided to the appropriate tool. The best cutting geometry (ASG) can be seen in the table "Tool recommendation" in each section.

Example:

Material:
non-alloy steel 1010
Bore type: Through bore

Tool recommendation:
DST cutting material
Order No.: 75J.93
Cutting geometry: ASG09

Recommended cutting data:
Cutting speed:
v_C = 330 – 660 ft/min (100 – 200 m/min)
Feed for ∅0.7874 inch (∅ 20.000 mm)
f_Z = 0.004 – 0.008 in/tooth
(0.10 – 0.21 mm/tooth)

DIHART Reamax® TS — Example

Tool Recommendation

Material group		Strength Rm (N/mm²)	Hardness HB	Material	Material example material code/DIN	High-speed machining: Order No.	Cutting geometry (ASG)	Cutting material/ coating	Order No.	Cutting geometry (ASG)	Cutting material/ coating
P	1.0	≤ 500		non-alloy steels	St37-2 / 1.0037; 9SMnPb28 / 1.0715; St44-2 / 1.0044	75J.93	ASG09	DST	75J.71	ASG09	TiN
P	2.0	500-900		non-alloy / low alloy steels	St52-2 / 1.0050, C55 / 1.0525, 16MnCr5 / 1.7131	75J.93	ASG09	DST	75J.71	ASG09	TiN
P	2.1	< 500		lead alloys	9SMnPb28 / 1.0718	75J.93	ASG09	DST	75J.71	ASG09	TiN

DIHART® Cutting Data

Example

Guideline for reaming: Material group	Strength Rm (lb/in²)	Hardness HB	Material	Material example ANSI / SAE	Cutting speed v_C ft/min (m/min): Reamers short / 3×D HM	DST	TiN	DBG-N	DDF	DJC	DBC	PCD	Reamers long / 5×D HM	DST	TiN	DBG-N	DDF	DJC	DBC	Feed f_Z in/tooth (mm/tooth): straight fluted G03, ASG11, ASG1101 Ø 0.984 - 1.968 (Ø 25 - 50)	> Ø 1.968 (> Ø 50)	straight fluted ASG09, ASG09B, ASG1 < Ø 0.472 (< Ø 12)	Ø 0.472 - 0.984 (Ø 12 - 25)
					min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max
P 1.0	≤ 72,500		Unalloyed steel	A570.36 1213 A573 81	19-32 (6-10)	330-660 (100-200)	195-460 (60-140)			330-660 (100-200)			19-32 (6-10)	260-525 (80-160)	195-390 (60-120)			260-525 (80-160)		0.003-0.007 (0.09-0.20)	0.004-0.010 (0.10-0.25)	0.003-0.005 (0.07-0.14)	0.004-0.008 (0.10-0.21)
P 2.0	72,500-130,000		Low alloy steel	5120 1055 5115	19-32 (6-10)	330-660 (100-200)	195-460 (60-140)			330-660 (100-200)			19-32 (6-10)	260-525 (80-160)	195-390 (60-120)			260-525 (80-160)		0.003-0.007 (0.09-0.20)	0.004-0.010 (0.10-0.25)	0.003-0.005 (0.07-0.14)	0.004-0.008 (0.10-0.21)

Dihart® Program overview Chart

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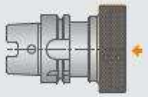
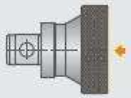
Adapters

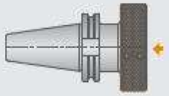
DAH® Compensating Holder
HSK adapter DIN 69893 A
▸ 78



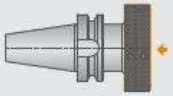
ABS® adapter
▸ 78



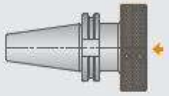
taper shank DIN 69871 AD/B
▸ 79



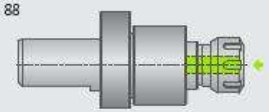
taper shank JIS B 6339 AD/B
▸ 79



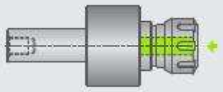
CAT / MS taper
▸ 80



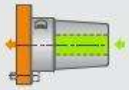
DPS Floating Holder
VDI connection DIN 69880
▸ 88



cylindrical shank similar to DIN 1835
▸ 88

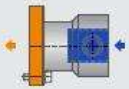


DAH® Hydraulic chuck
For cylindrical shank tooling
▸ 86

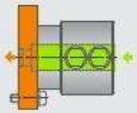


Reducer sleeve
▸ 85

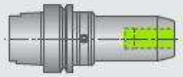
DAH® Adapter
For ABS® connection tooling
▸ 86



DAH® Cylindrical Shank Bushing
For cylindrical shank tooling
▸ 87

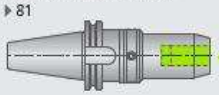


DAH® 50 HS Compensating Holder
HSK adapter DIN 69893 A
▸ 81

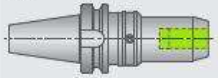


Reducer sleeve
▸ 85

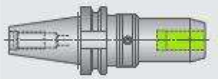
taper shank DIN 69871 AD
▸ 81



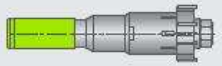
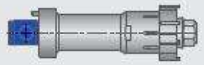
taper shank JIS B 6339 AD
▸ 81



taper shank CAT 40
▸ 81



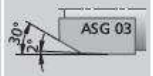
Reaming Tools

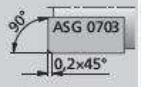
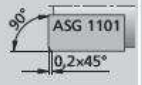
		Page
	**Reamax® TS** ⌀ 0.7087 – 2.5591 inch (⌀ 18.000 – 65.000 mm)	▸ 17
	⌀ 0.7087 – 1.6535 inch (⌀ 18.000 – 41.999 mm)	▸ 18
	⌀ 1.6535 – 2.5591 inch (⌀ 42.000 – 65.000 mm)	▸ 19
	⌀ 1.3780 – 2.5591 inch (⌀ 35.000 – 65.000 mm)	▸ 19
	**Reamax®** ⌀ 0.4724 – 1.5748 inch (⌀ 12.000 – 40.000 mm)	▸ 27
	**Monomax® – Solid & Expandable** ⌀ 0.2205 – 1.5980 inch (⌀ 5.600 – 40.599 mm) – expandable	▸ 34 – 37
	⌀ 0.2205 – 1.5980 inch (⌀ 5.600 – 40.599 mm) – solid	▸ 42 – 45
	**Solid Carbide Reamer** ⌀ 0.0551 – 0.5000 inch (⌀ 1.400 – 12.700 mm)	▸ 50 – 51
	**Cutting Ring** ⌀ 0.2858 – 3.9605 inch (⌀ 60.600 – 100.599 mm)	▸ 57 – 58
	⌀ 0.2858 – 4.3543 inch (⌀ 60.600 – 110.599 mm)	▸ 59
	⌀ 0.2858 – 4.3543 inch (⌀ 60.600 – 110.599 mm)	▸ 60
	**PCD Reamer** ⌀ 0.1575 – 0.7913 inch (⌀ 4.000 – 20.100 mm)	▸ 68 – 69

cylindrical connection DAH® connection ABS® connection

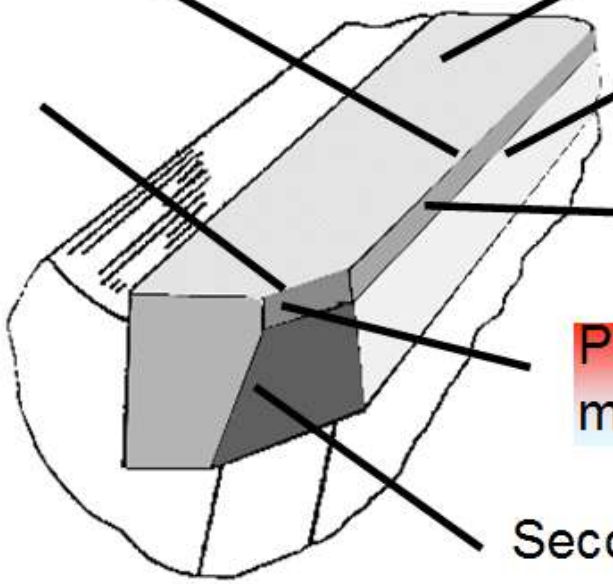
Dihart® Reamer Geometry / ASG

Standard ASG's

Geometry	Flute form	Chip evacuation	Bevel angles	Cutting material / coating
ASG0106	straight			HM TiN DBG-N DBF
ASG02	straight			HM
ASG03	straight			HM
ASG0501	left hand spiraled			HM TiN DBG-N DJC DBF
ASG07	straight			HM TiN DST DBG-N DJC
ASG0706	straight			DBC
ASG09	straight			HM TiN DST DBG-N DJC

Geometry	Flute form	Chip evacuation comment	Bevel angles	Cutting material / coating
ASG0703	straight	front cutting		HM TiN DST DBG-N DJC DBF
ASG0704	straight	front cutting for increased positional accuracy		HM TiN DST DBG-N DJC DBF
ASG09B	straight	chip breaking < Ø 32 mm		HM TiN DST DBG-N DJC
ASG1402	straight	chip breaking > Ø 32 mm		HM TiN DST DBG-N DJC
ASG11	straight			PCD
ASG1101	straight	front cutting		PCD

Function Areas of the Cutting Edges



Minor cutting edge

Major cutting edge

Cutting face

Relief surface on the minor cutting edge

Circular land

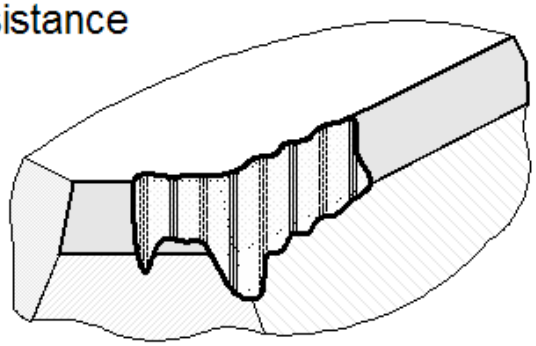
Primary clearance on the major cutting edge

Secondary clearance

Different Types of Tool Wear

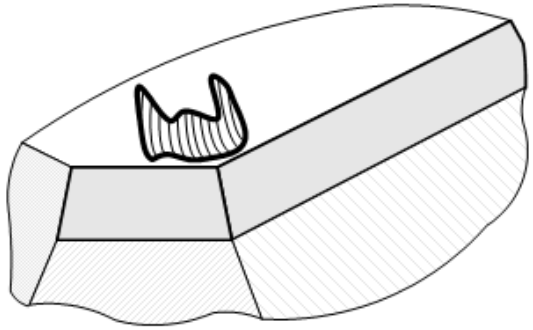
Flank wear

Reduce cutting speed or use a cutting material or coating with higher abrasion resistance



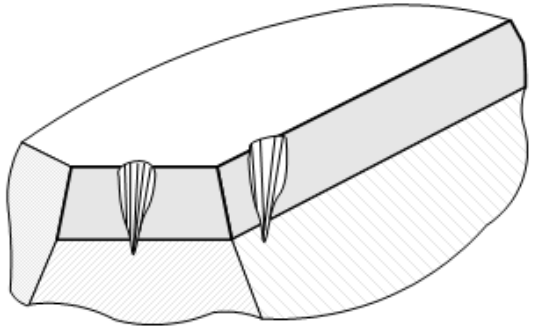
Pitting of chip surface

Reduce cutting speed or use a more positive rake angle



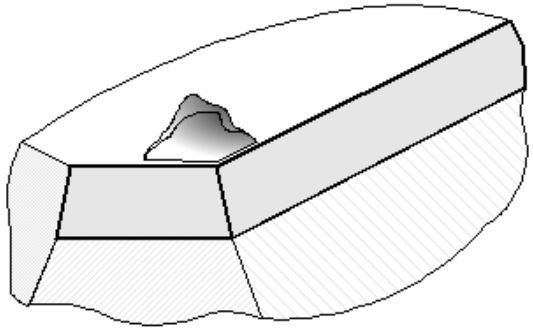
Notch wear

Reduce cutting speed or use a cutting material or coating with higher abrasion resistance



Build-up on chip surface

Increase cutting speed and use a positive geometry

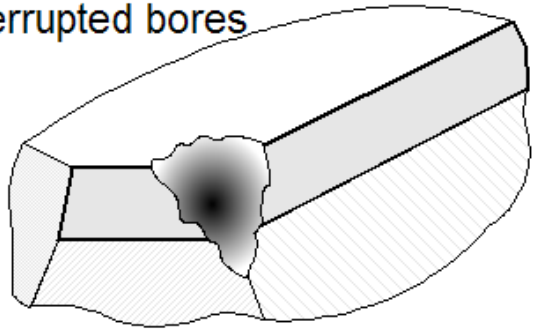


Different Types of Tool Wear

Major breakage

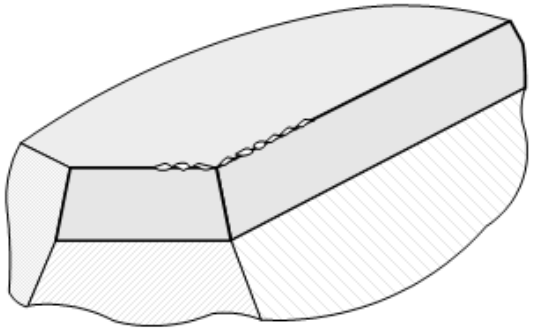
Reduce feed rate and stock allowance

Use carbide with coating instead of cermet for interrupted bores



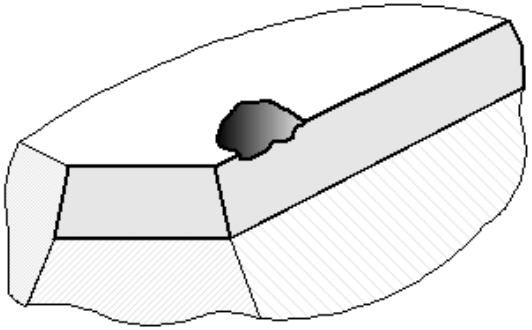
Edge wear

Increase cutting speed or use a more positive rake angle



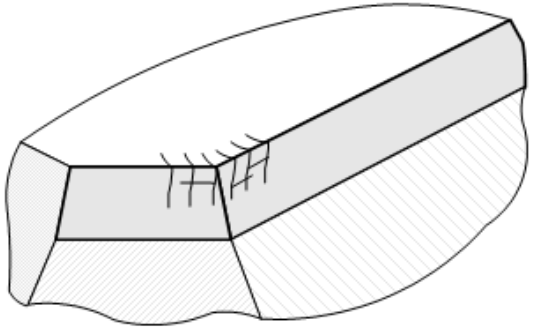
Fatigue wear

Reduce feed rate, increase stability of the reamer

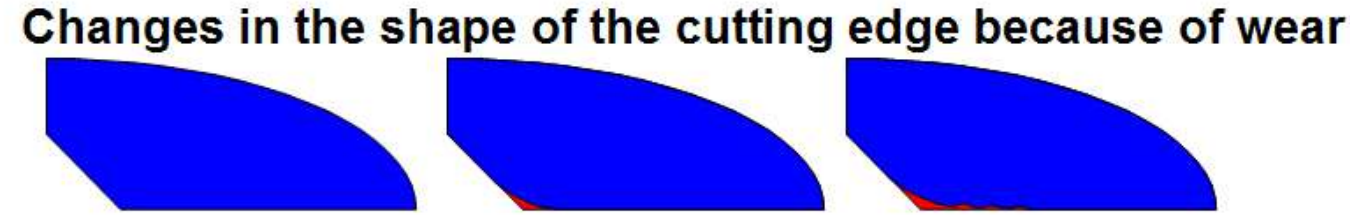


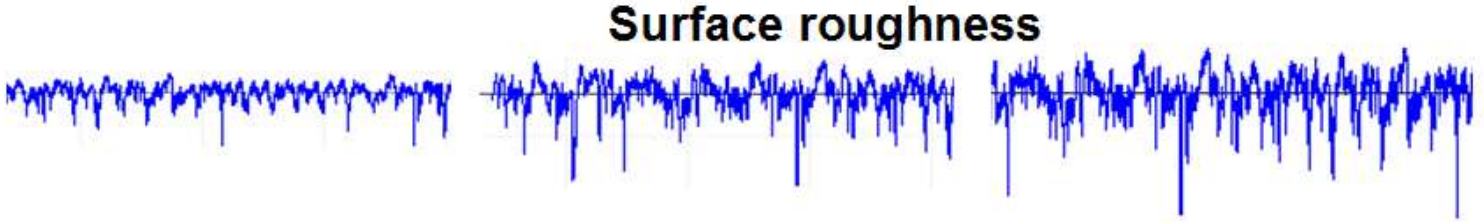
Hairline cracks

Use enough coolant and inner coolant supply, reduce cutting speed

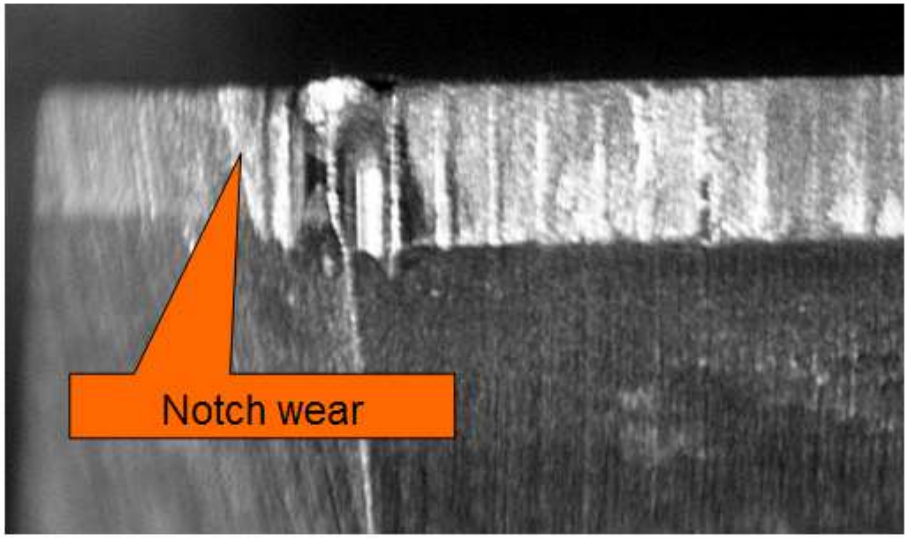


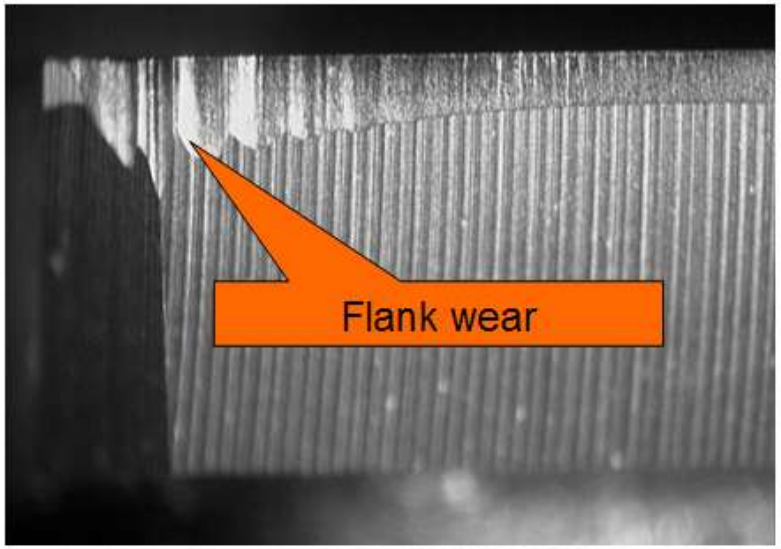
Influence of Wear

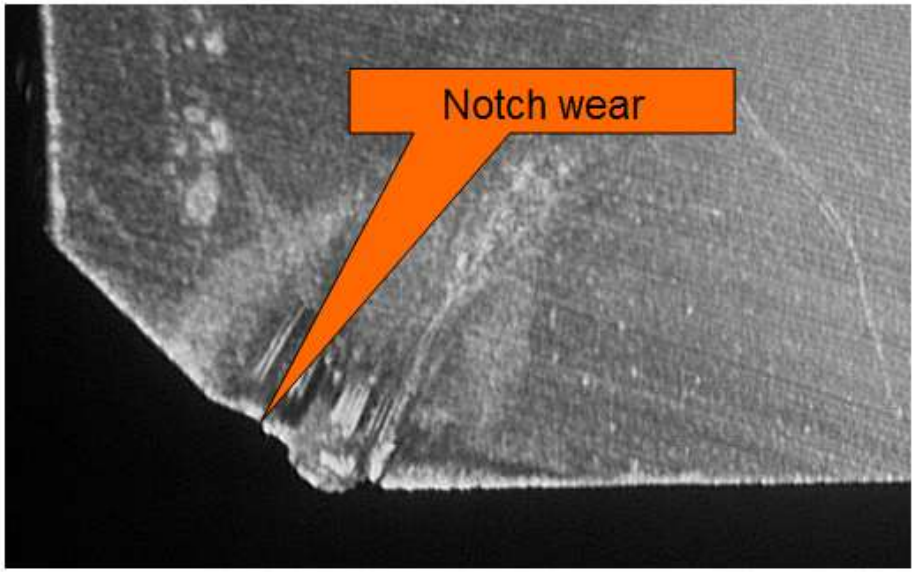


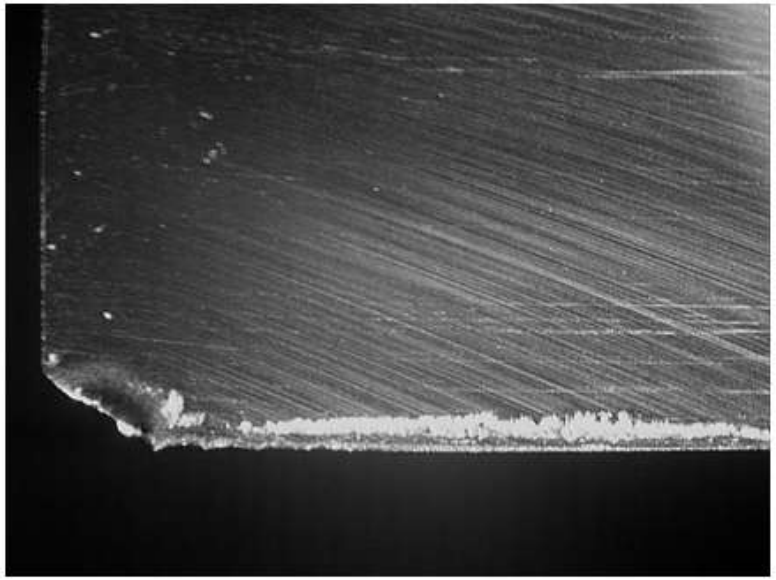


Examples of Tool Wear

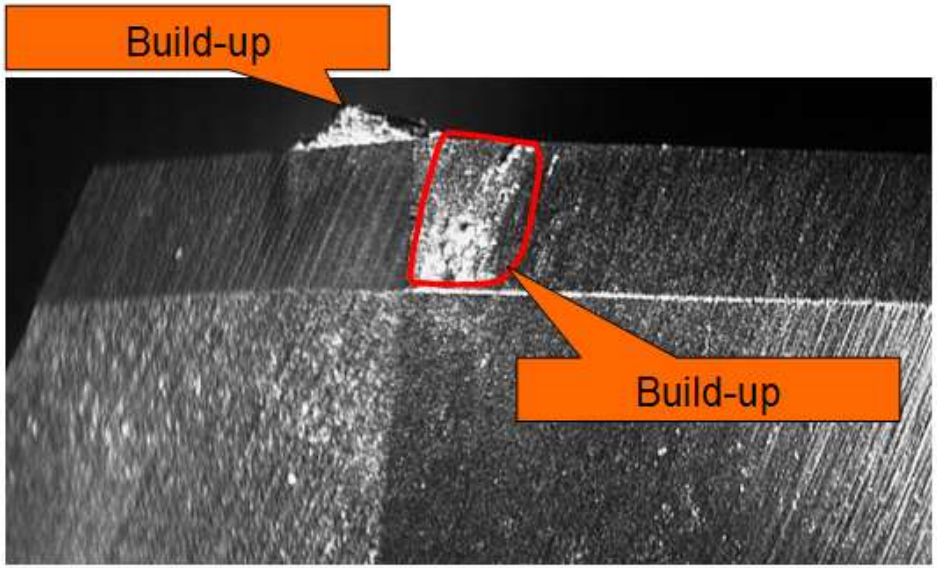


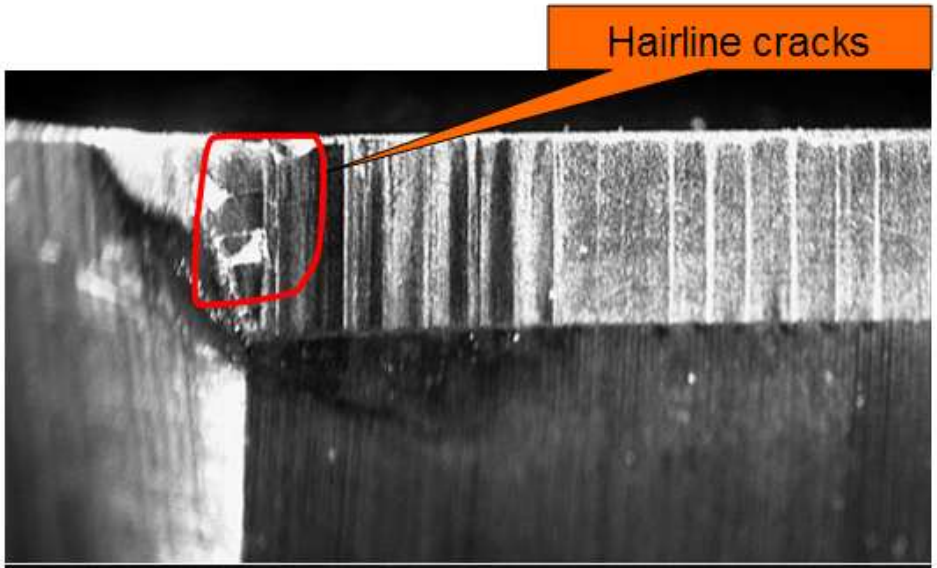


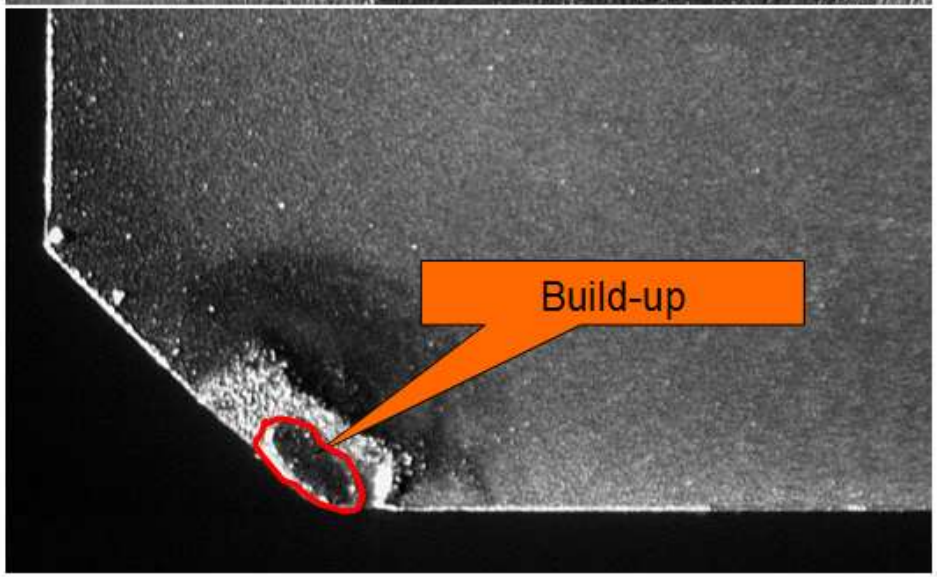


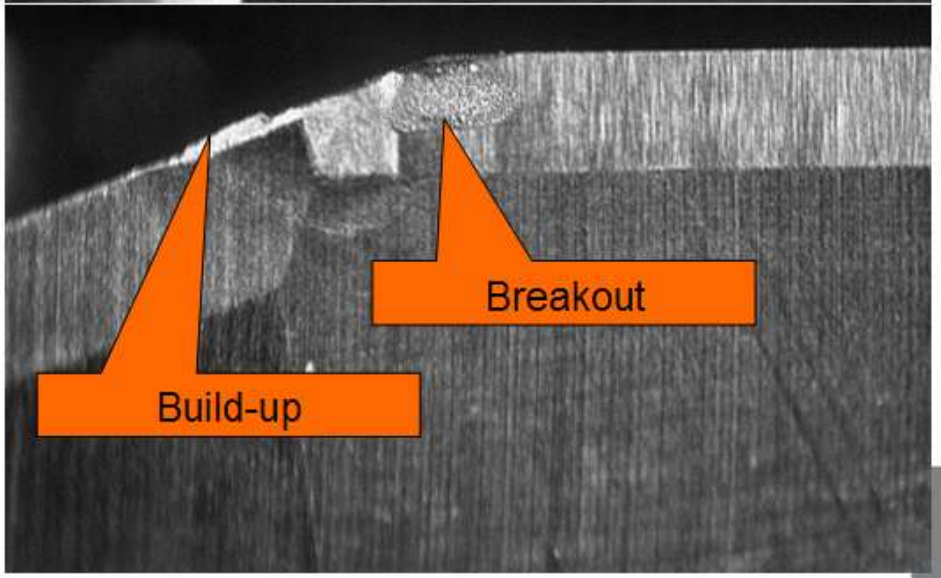


Examples of Tool Wear

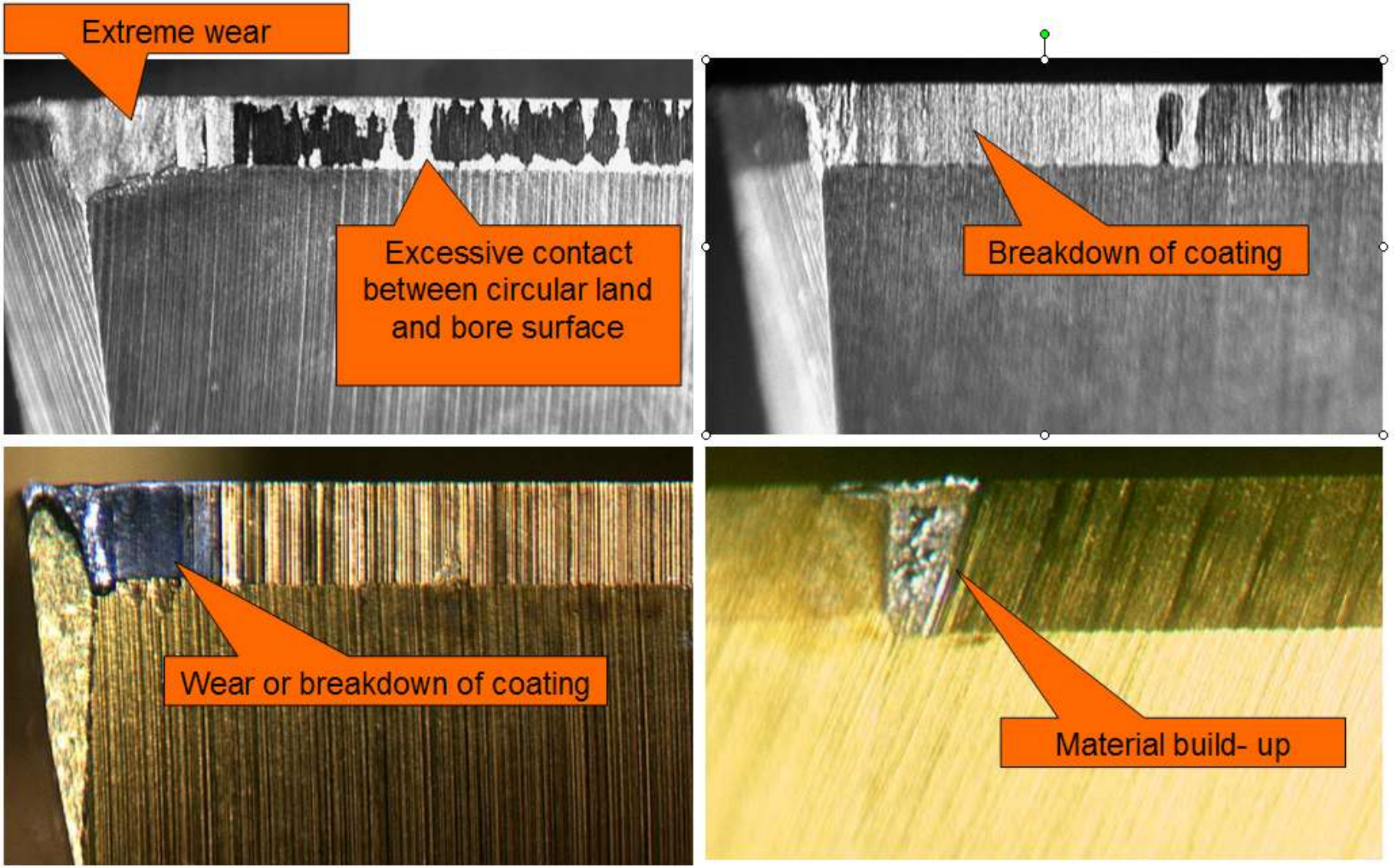




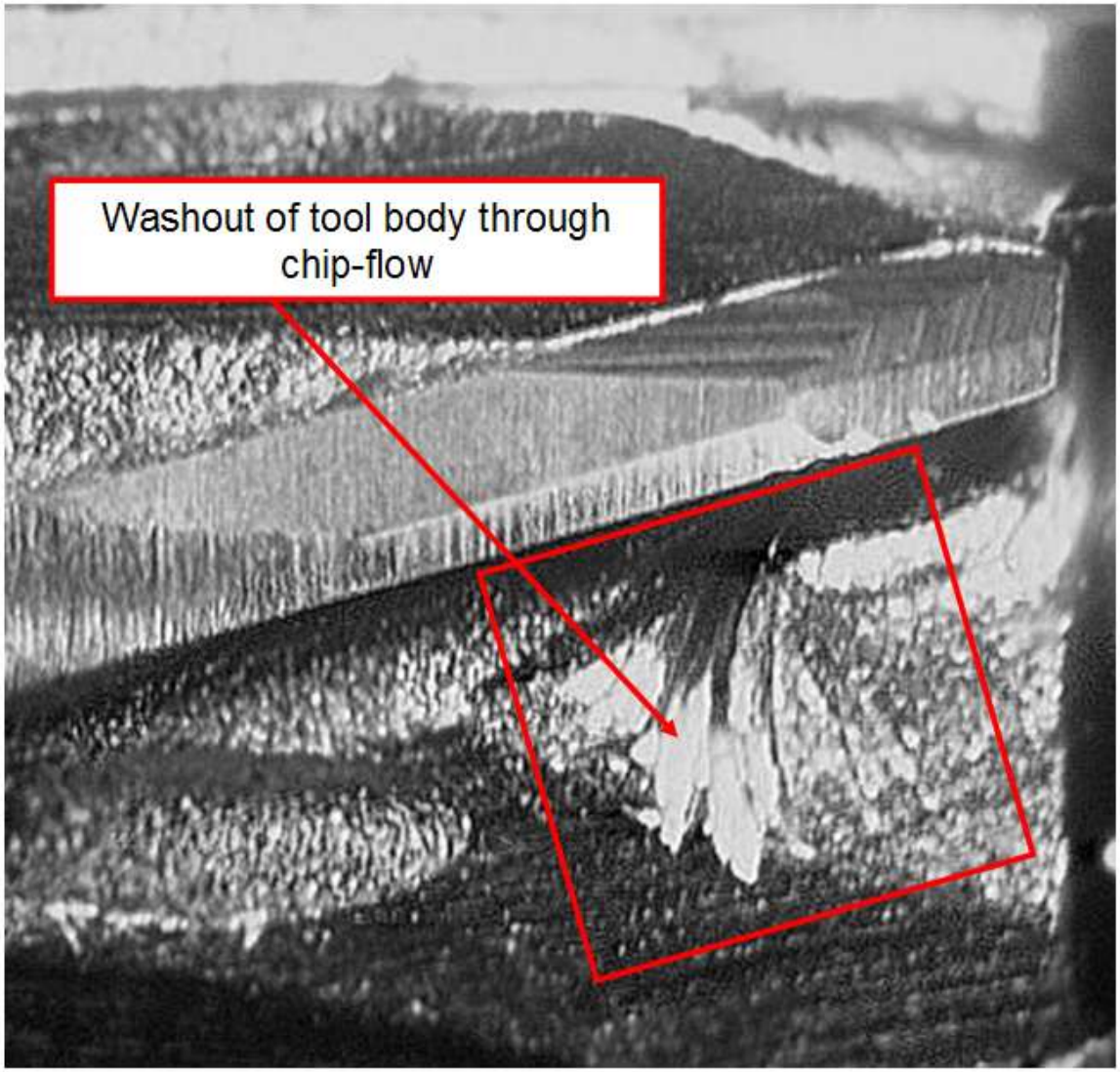




Examples of Tool Wear



Example of Tool Wear



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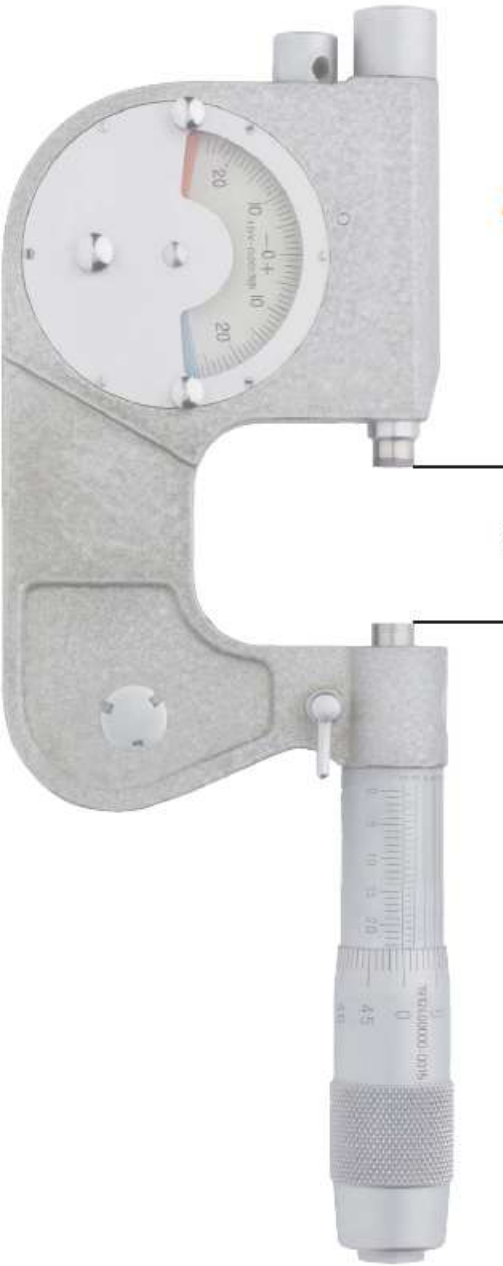
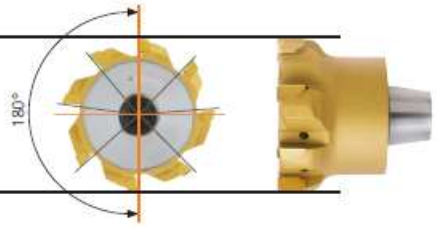


Unequal angular position!
Only two cutting edges are 180° in opposite line.
→ Measuring teeth
Because the tools are tapered measurement has to be done at the front of the cutting edge.

PCD tipped reamers require non-contact measuring device!



Mark of measuring teeth
- Drive pin, lobe
- Number
- Punch-mark

How to measure a Dihart® reamer!

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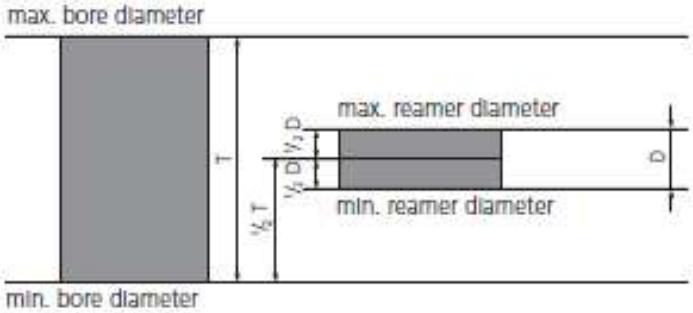
Manufacturing tolerance of expandable reamers

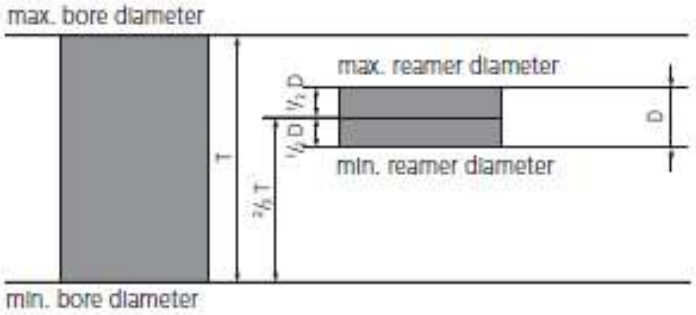
The diameter of an expandable reamer is ground to the middle of the bore tolerance T.
The expansion feature of these tools allows for compensation of wear.



T = Tolerance field of bore
D = Manufacturing tolerance of reamer

Manufacturing tolerance of solid reamers

The manufacturing tolerance field D of the solid reamers is in the upper third of the bore tolerance T.



T = Tolerance field of bore
D = Manufacturing tolerance of reamer

Dihart® Reamer Coating / Substrates

Cutting materials	HM	HM is a fine-grained carbide, which features high abrasion resistance and achieves good results in standard materials. It is very suitable for coating, and therefore mainly used also as cutting material for coated reamers.
	DST	DST is a high-performance cutting material, and very suitable for high-speed reaming. DST is ideal for machining non-alloyed or low alloyed steels up to 1200 N/mm² tensile strength. DST is also excellent for reaming nodular iron.
Coatings	TIN	TIN is an all purpose coating material. It has a very smooth surface and has very little affinity to many materials. This avoids structure deformation which gives excellent surface-finish results when reaming, and with considerably higher cutting data than with non coated carbide reamers.
	DBG-N	DBG-N is a coating which offers a very high grade of hardness. The coating also has a very high oxidation resistance. This makes it a particularly high-performance coating that is very suitable for high cutting speeds, and also for use with mist coolant machining.
	DJC	DJC is a combination of the high-performance cutting material DST and the high-performance coating DBG-N. With this combination a very high tool life with extremely high cutting data can be reached.
	DBF	DBF is a coating that exhibits a very high level of hardness and a high resistance to oxidation. This makes the coating suitable for cast iron machining. A very smooth layer means that stainless materials can also be successfully machined.
	DBC	DBC is a coating with a very high level of hardness and an extremely smooth surface. It is suitable for machining aluminum and copper alloys.

Additional high-tech coatings are available for special applications.

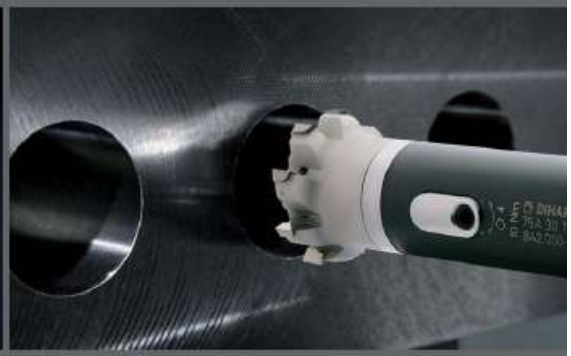
Dihart® performance Data

KOMET USA

Cutting Data's

Guideline for reaming					Cutting speed v_c ft/min (m/min)														Feed f_z in/tooth (mm/tooth)									
					Reamers short / 3×D								Reamers long / 5×D								straight fluted ASG07, ASG0106, ASG03, ASG11, ASG1101				straight fluted ASG09, ASG09B, ASG1402				left hand spiraled ASG0501
Material group	Strength Rm (lbf/in²)	Hardness HB	Material	Material example ANSI / SAE	HM	DST	TiN	DBG-N	DBF	DJC	DBC	PCD	HM	DST	TiN	DBG-N	DBF	DJC	DBC	PCD	< Ø 0.472 (< Ø 12)	Ø 0.472 - 0.984 (Ø 12 - 25)	Ø 0.984 - 1.968 (Ø 25 - 50)	> Ø 1.968 (> Ø 50)	< Ø 0.472 (< Ø 12)	Ø 0.472 - 0.984 (Ø 12 - 25)	Ø 0.984 - 1.968 (Ø 25 - 50)	> Ø 1.968 (> Ø 50)	Ø 0.189 - 0.500 (Ø 4.8 - 12.7)
					min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max	min-max
P 1.0	≤ 72,500		non-alloy steels	1010 1144 1213	19-32 (6-10)	330-660 (100-200)	195-460 (60-140)			330-660 (100-200)			19-32 (6-10)	260-525 (80-160)	195-390 (60-120)			260-525 (80-160)			0.002-0.004 (0.05-0.10)	0.003-0.006 (0.07-0.15)	0.003-0.007 (0.09-0.20)	0.004-0.010 (0.10-0.25)	0.003-0.005 (0.07-0.14)	0.004-0.008 (0.10-0.21)	0.005-0.009 (0.12-0.24)	0.005-0.012 (0.13-0.30)	0.003-0.005 (0.07-0.14)
P 2.0	72,500 - 130,000		non-alloy / low alloy steels	1055 5115 5120	19-32 (6-10)	330-660 (100-200)	195-460 (60-140)			330-660 (100-200)			19-32 (6-10)	260-525 (80-160)	195-390 (60-120)			260-525 (80-160)			0.002-0.004 (0.05-0.10)	0.003-0.006 (0.07-0.15)	0.003-0.007 (0.09-0.20)	0.004-0.010 (0.10-0.25)	0.003-0.005 (0.07-0.14)	0.004-0.008 (0.10-0.21)	0.005-0.009 (0.12-0.24)	0.005-0.012 (0.13-0.30)	0.003-0.005 (0.07-0.14)
P 2.1	< 72,500		lead alloys	12L14	50-145 (15-45)	330-660 (100-200)	195-460 (60-140)			330-660 (100-200)			50-145 (15-45)	260-525 (80-160)	195-390 (60-120)			260-525 (80-160)			0.002-0.004 (0.05-0.10)	0.003-0.006 (0.07-0.15)	0.003-0.007 (0.09-0.20)	0.004-0.010 (0.10-0.25)	0.003-0.005 (0.07-0.14)	0.004-0.008 (0.10-0.21)	0.005-0.009 (0.12-0.24)	0.005-0.012 (0.13-0.30)	0.003-0.005 (0.07-0.14)
P 3.0	> 130,000		non alloy / low alloy steels: heat resistant structural, heat treated, nitride and tools steels	1064 4140	16-30 (5-9)	260-490 (80-150)	195-360 (60-110)			260-490 (80-150)			16-30 (5-9)	260-390 (80-120)	195-295 (60-90)			260-390 (80-120)			0.001-0.003 (0.04-0.08)	0.002-0.005 (0.06-0.12)	0.002-0.006 (0.07-0.16)	0.003-0.008 (0.08-0.20)	0.002-0.004 (0.06-0.11)	0.003-0.007 (0.08-0.17)	0.003-0.007 (0.09-0.19)	0.004-0.009 (0.10-0.24)	0.002-0.004 (0.06-0.11)
P 4.0	> 130,000		high alloy steels	H13 H21	13-23 (4-7)		50-145 (15-45)						13-23 (4-7)		50-145 (15-45)						0.001-0.003 (0.04-0.07)	0.002-0.004 (0.05-0.11)	0.002-0.005 (0.06-0.14)	0.003-0.007 (0.07-0.18)					
P 4.1			HSS	M10 T4																								
S 5.0		250	special alloys: inconel, Hastelloy, Nimonic, etc.	Inconel® 718 Nimonic® 80A																								
S 5.1	58,000		titanium, titanium alloys	Ti-6Al-4V	16-40 (5-12)								16-40 (5-12)								0.002-0.004 (0.05-0.11)	0.003-0.007 (0.07-0.17)	0.004-0.009 (0.10-0.24)	0.004-0.012 (0.11-0.30)					
M 6.0	≤ 87,000		stainless steels	304L 316	16-26 (5-8)		50-130 (15-40)		100-195 (30-60)				16-26 (5-8)		50-130 (15-40)		100-195 (30-60)				0.001-0.003 (0.04-0.08)	0.002-0.005 (0.06-0.12)	0.003-0.006 (0.07-0.16)	0.003-0.008 (0.08-0.20)					0.002-0.005 (0.06-0.12)
M 6.1	<130,000		stainless steels	630	13-19 (4-6)		32-115 (10-35)		65-165 (20-50)				13-19 (4-6)		32-115 (10-35)		65-165 (20-50)				0.001-0.003 (0.04-0.08)	0.002-0.005 (0.06-0.12)	0.003-0.006 (0.07-0.16)	0.003-0.008 (0.08-0.20)					0.002-0.005 (0.06-0.12)
M 7.0	>130,000		stainless / fireproof steels	403 420	13-19 (4-6)		32-115 (10-35)		65-165 (20-50)				13-19 (4-6)		32-15 (10-35)		65-165 (20-50)				0.001-0.003 (0.04-0.08)	0.002-0.005 (0.06-0.12)	0.003-0.006 (0.07-0.16)	0.003-0.008 (0.08-0.20)					0.002-0.005 (0.06-0.12)
K 8.0		180	gray cast iron	Class 25 G3000	12-82 (10-25)		165-425 (50-130)	260-720 (80-220)	260-720 (80-220)				12-82 (10-25)		65-230 (50-100)	260-490 (80-150)	260-490 (80-150)				0.002-0.005 (0.06-0.13)	0.003-0.008 (0.08-0.20)	0.004-0.010 (0.11-0.26)	0.005-0.013 (0.12-0.33)					0.003-0.008 (0.08-0.20)
K 8.1		250	alloy gray cast iron	A436 Type 2	19-40 (6-12)		100-295 (30-90)	130-425 (40-130)	130-425 (40-130)				19-40 (6-12)		100-295 (30-90)	130-330 (40-100)	130-330 (40-100)				0.002-0.005 (0.06-0.12)	0.003-0.007 (0.08-0.18)	0.004-0.009 (0.11-0.24)	0.005-0.012 (0.12-0.30)					0.003-0.007 (0.08-0.18)
K 9.0	≤ 87,000	130	ductile cast iron, ferritic	60-40-18 D4512	30-59 (9-18)	425-980 (130-300)		425-980 (130-300)	425-980 (130-300)	425-980 (130-300)			30-59 (9-18)	390-590 (120-180)		390-580 (120-180)	390-590 (120-180)	390-590 (120-180)			0.002-0.005 (0.06-0.13)	0.003-0.008 (0.08-0.20)	0.004-0.010 (0.11-0.26)	0.005-0.013 (0.12-0.33)					0.003-0.008 (0.08-0.20)
K 9.1		230	ductile cast iron, ferritic / perlitic	80-55-06 D5506	30-59 (9-18)	330-820 (100-250)		330-820 (100-250)	330-820 (100-250)	330-820 (100-250)			30-59 (9-18)	330-525 (100-160)		330-520 (100-160)	330-525 (100-160)	330-525 (100-160)			0.002-0.005 (0.06-0.13)	0.003-0.008 (0.08-0.20)	0.004-0.010 (0.11-0.26)	0.005-0.013 (0.12-0.33)					0.003-0.008 (0.08-0.20)
K 10.0	> 87,000	250	spheroidal graphite cast iron, perlitic malleable iron	100-70-03 07003	26-50 (8-15)	260-590 (80-180)		260-590 (80-180)	260-590 (80-180)	260-590 (80-180)			26-50 (8-15)	260-490 (80-150)		260-490 (80-150)	260-490 (80-150)	260-490 (80-150)			0.002-0.005 (0.06-0.12)	0.003-0.007 (0.08-0.18)	0.004-0.009 (0.11-0.24)	0.005-0.012 (0.12-0.30)					0.003-0.007 (0.08-0.18)
K 10.1		200	alloyed spheroidal graphite cast iron	A43D2	19-40 (6-12)		100-195 (30-60)	165-330 (50-100)	165-330 (50-100)				19-40 (6-12)		100-195 (30-60)	165-330 (50-100)	165-330 (50-100)	165-330 (50-100)			0.002-0.005 (0.06-0.12)	0.003-0.007 (0.08-0.18)	0.004-0.009 (0.11-0.24)	0.005-0.012 (0.12-0.30)					0.003-0.007 (0.08-0.18)
K 10.2		300	vermicular cast iron		19-40 (6-12)		100-230 (30-70)	130-425 (40-130)	130-425 (40-130)				19-40 (6-12)		100-230 (30-70)	130-425 (40-130)	130-425 (40-130)	130-425 (40-130)			0.002-0.005 (0.06-0.12)	0.003-0.007 (0.08-0.18)	0.004-0.009 (0.11-0.24)	0.005-0.012 (0.12-0.30)					0.003-0.007 (0.08-0.18)
N 12.0		90	copper alloy brass, lead-alloy bronze, lead bronze: good cut	316	12-100 (10-30)	330-1050 (100-320)	260-660 (80-200)						12-100 (10-30)	330-660 (100-200)	260-490 (80-150)						0.002-0.005 (0.05-0.12)	0.003-0.007 (0.07-0.18)	0.003-0.009 (0.09-0.24)	0.004-0.012 (0.10-0.30)					0.003-0.007 (0.07-0.18)
N 12.1		100	copper alloy brass, bronze: average cut		12-65 (10-20)		165-490 (50-150)						12-65 (10-20)		165-390 (50-120)						0.002-0.005 (0.05-0.12)	0.003-0.007 (0.07-0.18)	0.003-0.009 (0.09-0.24)	0.004-0.012 (0.10-0.30)					0.003-0.007 (0.07-0.18)
N 13.0		60	wrought aluminum alloys	6151 7075	12-100 (10-30)						165-980 (50-300)	360-1080 (110-330)	12-100 (10-30)						165-785 (50-240)	330-785 (100-240)	0.002-0.005 (0.05-0.12)	0.003-0.007 (0.07-0.18)	0.003-0.009 (0.09-0.24)	0.004-0.012 (0.10-0.30)					0.003-0.007 (0.07-0.18)
N 13.1		75	cast aluminum alloy: Si-content <10% magnesium alloy	380 A356.0	12-100 (10-30)						490-980 (150-300)	360-1800 (110-550)	12-100 (10-30)						490-820 (150-250)	330-980 (100-300)	0.002-0.005 (0.05-0.12)	0.003-0.007 (0.07-0.18)	0.003-0.009 (0.09-0.24)	0.004-0.012 (0.10-0.30)					0.003-0.007 (0.07-0.18)
N 14.0		100	cast aluminum alloy: Si-content > 10%	383 A413.0	26-65 (8-20)						490-980 (150-300)	360-1440 (110-440)	26-65 (8-20)						490-820 (150-250)	330-820 (100-250)	0.002-0.005 (0.05-0.12)	0.003-0.007 (0.07-0.18)	0.003-0.009 (0.09-0.24)	0.004-0.012 (0.10-0.30)					0.003-0.007 (0.07-0.18)
H 15.0	203,000		hardened steels < 45 HRC					130-195 (40-60)								130-195 (40-60)					0.001-0.003 (0.04-0.08)	0.002-0.005 (0.06-0.12)	0.003-0.006 (0.07-0.16)	0.003-0.008 (0.08-0.20)					
H 16.0	261,000		hardened steels > 45 HRC, ≤ 55 HRC					100-165 (30-50)								100-165 (30-50)					0.001-0.003 (0.04-0.08)	0.002-0.005 (0.06-0.12)	0.003-0.006 (0.07-0.16)	0.003-0.008 (0.08-0.20)					

DIHART Reamax® TS



Modular Reaming System

Unlimited flexibility and cost-effectiveness
DIHART Reamax® TS is a uniform clamping system with a standardized separation point for all DIHART® reaming heads, offering flexibility and cost-effectiveness thanks to fast and high-precision tool changing.

DIHART Reamax® TS guarantees a maximum of system modularity thanks to a versatile and clearly structured range of reaming heads which can handle all commonly encountered diameter ranges and machining requirements. Tool costs and logistical expenditure are thereby reduced to a minimum.

BENEFITS for you:

- **High-precision ground for guaranteed quality**
- **Modular tool system for the highest flexibility**
- **Compensation for wear through simple readjustment**
- **Integrated concentricity adjustment for short lengths**
- **Can be adjusted for extremely small hole**

Application:

- All current materials
- Through holes and blind bores
- Small bore tolerances
- Up to 5 × D
- High speed – up to 985 ft/min (300 m/min)
- Feed – up to 0.094 in/rev (2.4 mm/rev)

A connection for maximum production reliability

This high-precision connection guarantees safer transfer of the torque which occurs during reaming and the concentricity required for precision machining. DIHART Reamax® TS is designed for high speed machining.

Multi-flute tools

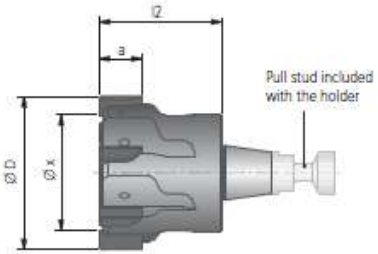
Adjustable for small tolerances
To compensate for wear and to meet tolerances as small as IT4, all DIHART Reamax® TS multi-flute tools are adjustable. Maximum repeatable accuracy is achieved without pre-setting, i.e.

- Longer tool life
- Maximum performance
- Extremely tight bore tolerances
- Less machine down time

With internal coolant system

The coolant is supplied through the tool with radial or central outlet.

Assembly instructions



Clean taper/face contact thoroughly (grease free).
Screw pull stud ⑤ into reaming head and tighten with open-end wrench ⑥.

Open clamping jaws ② with key ③.
Insert reaming head ①.

Close clamping jaws ② with key ③, noting recommended torque. When inserting the reaming head ① this is drawn into its final position by closing the clamping jaws ②.

Dia. range	Starting torque M
0.709 - 0.787 (18.000 - 19.999)	13 in-lbs (1.5 Nm)
0.788 - 0.866 (20.000 - 21.999)	22 in-lbs (2.5 Nm)
0.867 - 1.062 (22.000 - 26.999)	35 in-lbs (4 Nm)
1.063 - 1.377 (27.000 - 34.999)	44 in-lbs (5 Nm)
1.378 - 1.653 (35.000 - 41.999)	53 in-lbs (6 Nm)
1.654 - 2.047 (42.000 - 51.999)	88 in-lbs (10 Nm)
2.048 - 2.559 (52.000 - 65.000)	111 in-lbs (13 Nm)

When removing the reaming head ① this is pressed out of its position by the clamping jaws ② which allows it to be easily removed from the holder: open the clamping jaws ② with the key ③, remove the reaming head ①.

Adjusting to compensate for wear

The smallest bore tolerances of up to IT4 can be achieved by readjusting with the hexagonal key ④.

Dihart® Reamax® TS

Replaceable reaming Head – adjustable

- Dia. range from ø0.7087” – ø2.5591” (18.000 – 65.000)
- Cutting material / coatings :

  Carbide, Cermet / TiN, DBG-N, DJC, DBF, DBC
- One version for blind hole and through hole coolant
- Straight fluted
- Preferred dia. on stock in Germany

see on page 92/93

Dihart® Reamax® TS

Arbor program

- Metric cylindrical shank
  short & long
  Ø0.7087 – Ø2.5591 (18.000 – 65.000)

- Metric cylindrical shank with DAH® Zero
  short & long
  Ø0.7087 – Ø1.6535 (18.000 – 41.999)

- DAH®81 flange
  short & long
  Ø1.6535 – Ø2.5591 (42.000 – 65.000)

- ABS adaption
  Ø1.3780 – Ø2.5591 (35.000 – 65.000)

Dihart® Reamax® TS

KOMET USA

1

Reamax® TS		
Cutting material / coating	Order No.	Order No.
HM	75J.21	75H.21
TiN	75J.71	75H.71
DBG-N	75J.37	75H.37
DST	75J.93	75H.93
DJC	75J.67	75H.67
DBF	75J.47	75H.47
DBC	75J.17	75H.17

(..) = mm

Dimensions					
Ø D	min. diameter for face machining Ø x ~	a ~	l2 ~	No. of teeth	
0.709 – 0.787 (18.000 – 19.999)	⌀ D – 0.157 (⌀ D – 4.0)	0.236 (6.0)	0.787 (20)	6	0.07
0.788 – 0.866 (20.000 – 21.999)	⌀ D – 0.157 (⌀ D – 4.0)	0.236 (6.0)	0.787 (20)	6	0.07
0.867 – 1.062 (22.000 – 26.999)	⌀ D – 0.165 (⌀ D – 4.2)	0.236 (6.0)	0.787 (20)	6	0.09
1.063 – 1.251 (27.000 – 31.799)	⌀ D – 0.213 (⌀ D – 5.4)	0.236 (6.0)	0.984 (25)	6	0.09
1.252 – 1.377 (31.800 – 34.999)	⌀ D – 0.236 (⌀ D – 6.0)	0.236 (6.0)	0.984 (25)	8	0.11
1.378 – 1.653 (35.000 – 41.999)	⌀ D – 0.272 (⌀ D – 6.9)	0.236 (6.0)	0.984 (25)	8	0.29-0.33
1.654 – 2.047 (42.000 – 51.999)	⌀ D – 0.295 (⌀ D – 7.5)	0.236 (6.0)	1.181 (30)	8	0.44-0.55
2.048 – 2.559 (52.000 – 65.000)	⌀ D – 0.346 (⌀ D – 8.8)	0.315 (8.0)	1.378 (35)	10	0.77-0.99

Preferred range available from stock (→ price list).

Order example:

Order No.	Bore diameter	Bore tolerance	Material or ASG
75J.93	⌀ 0.709 (⌀ 18 mm)	H6	St37 or ASG09

DIHART Reamax®

The new dimension in high performance reaming

More performance. More flexibility.
DIHART's high-speed reaming tools Reamax® provide maximum cutting capacity through multiple cutting edges and offers all the advantages of replaceable cutting inserts in one system.

- Maximum efficiency and complete process reliability
- Low vibrations during maximum cutting speed
- No re-setting when blades are replaced
- Maximum flexibility for combining cutting materials and coatings along with diameters and geometry of the replaceable inserts are available and can be chosen for each specific application
- Made to measure, available within the shortest time
- Precise repeatability
- Maximum replacement accuracy
- Designed especially for inner coolant supply and minimal lubrication

Reaming tools

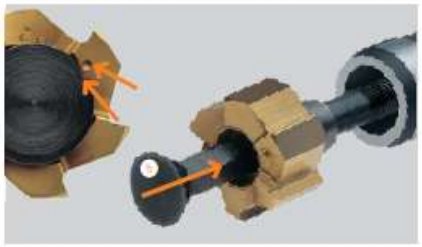
The modular reaming tool consists of a tool holder with cylindrical shaft and the Reamax® -replaceable insert. A high precision short taper ensures the connection between the replaceable insert and the collet. Precise repeatability of the diameters and an immediate continuation of machining with a new insert are guaranteed.

KOMET USA

2

Assembly instructions

Clean taper/face contact thoroughly (grease free).
Apply light grease on tie bar thread ⑤.



Locate tie bar ⑤ on insert and holder.
Important note: for nominal size 3, 4 and 5, fit with marking on tie bar and insert aligned.

Draw in tie bar with the clamping nut. Before tightening, turn insert and tie bar clockwise until it stops.
Tighten the clamping nut as far as possible using the torque key to the specified starting torque M.

Dia Range	Staring torque M
0.472 – 0.629 (12.000 – 15.999)	35 - 44 in-lbs (4-5 Nm)
0.630 – 0.866 (16.000 – 21.999)	53 - 62 in-lbs (6-7 Nm)
0.867 – 1.023 (22.000 – 25.999)	88 -106 in-lbs (10-12 Nm)
1.024 – 1.259 (26.000 – 32.000)	159 - 177 in-lbs (18-20 Nm)
1.260 – 1.575 (32.001 – 40.000)	230 - 248 in-lbs (26-28 Nm)

Removing the replaceable insert:
Loosen the clamping screw.
Pull tie bar from holder and insert.

Locate operating key ③ in insert and loosen insert by turning.

Dihart® Reamax®

Replaceable reaming Head – solid

- Dia. range from ø0.4724 – ø1.5748 (12.000 – 40.000)
- Cutting material / coatings :

  Carbide, Cermet / TiN, DBG-N, DJC
- One version for blind hole and through hole coolant
- Straight fluted
- Left hand spiraled on request – must be quoted
- Preferred dia. on stock in Germany

see on page 92/93

Dihart® Reamax®

Arbor style

- Cylindrical shank metric
  Ø0.4724 – Ø1.5748 (12.000 – 40.000)

Dihart® Reamax®

KOMET USA

2

Reamax®	
Cutting material / coating	Order No.
HM	640.21
TiN	640.71
DBG-N	640.37
DST	640.93
DJC	640.67

(..) = mm

Dimensions				
Ø D	min. diameter for face machining Ø x ~	a ~	f ~	No. of teeth
0.472 – 0.629 (12.000 – 15.999)	⌀ D – 0.098 (⌀ D – 2.5)	0.354 (9.0)	0.020 (0.5)	6
0.630 – 0.866 (16.000 – 21.999)	⌀ D – 0.118 (⌀ D – 3.0)	0.354 (9.0)	0.020 (0.5)	6
0.867 – 1.023 (22.000 – 25.999)	⌀ D – 0.118 (⌀ D – 3.0)	0.354 (9.0)	0.020 (0.5)	8
1.024 – 1.259 (26.000 – 32.000)	⌀ D – 0.157 (⌀ D – 4.0)	0.354 (9.0)	0.020 (0.5)	8
1.260 – 1.575 (32.001 – 40.000)	⌀ D – 0.157 (⌀ D – 4.0)	0.354 (9.0)	0.020 (0.5)	8

Preferred range available from stock (→ price list).

Order example:

Order No.	Bore diameter	Bore tolerance	Material or ASG
640.93	⌀ 0.787" (⌀ 20 mm)	H7	St37 or ASG09

DIHART Monomax®

DIHART Monomax®

One-piece tools – known as monoblock tools – are one of DIHART's specialities. The demands which have been made over decades are reflected in an enormous number of types and variations. This successful tool program has been completely revised and standardized by efficient manufacturing.

BENEFITS for you:

- Designed for small hole diameters
- Can be adjusted for extremely small hole tolerance
- Extremely high process reliability through mono construction
- Precision ground to size

Dihart® Monomax®

Monoblock - expandable

KOMET USA

3

- Dia. range from ø0.2205 – ø1.5980 (5.600 – 40.599)
- Cutting material / coatings :

  Carbide, Cermet / TiN, DBG-N, DJC
- Blind hole and through hole coolant style
- Straight fluted
- Inch and metric cylindrical shank
- Short and long version

NEW

Preferred dia. on stock in Germany

see on page 94/95

Dihart® Monomax®

Monoblock - expandable

KOMET USA

3

Inch shank

Monomax®		
Cutting material / coating	Order No.	Order No.
HM	55J.21	55H.21
TiN	55J.71	55H.71
DBG-N	55J.37	55H.37
DST	55J.93	55H.93
DJC	55J.67	55H.67

Dimensions							
Ø D	Cylindrical shank Ø d x c	L	b	f ~	a ~	No. of teeth	
0.220 – 0.350	0.500 x 1.772	3.346	1.575	0.004	0.374	4	
0.351 – 0.625	0.500 x 1.772	3.740	1.969	0.004	0.374	6	
0.626 – 0.743	0.625 x 1.969	3.937	1.969	0.004	0.374	6	
0.744 – 1.019	0.750 x 2.362	4.724	2.362	0.004	0.374	6	
1.020 – 1.283	1.000 x 2.362	5.315	2.953	0.004	0.374	6	
1.284 – 1.598	1.000 x 2.362	5.315	2.953	0.004	0.551	8	

Preferred range available from stock (→ price list).

Order example:

Order No.	Bore diameter	Bore tolerance	Material or ASG
55J.93	Ø 0.472"	H6	St37 or ASG09

Dihart® Monomax®

Monoblock - solid

4

- Dia. range from ø0.2205 – ø1.5980 (5.600 – 40.599)
- Cutting material / coatings :

  Carbide, Cermet / TiN, DBG-N, DJC
- Blind hole and through hole coolant style
- Straight fluted
- Inch and metric cylindrical shank
- Short and long version

Dihart® solid carbide reamer (Fullmax)

Full Carbide, solid

KOMET USA

5

- For blind hole application, straight fluted
  Ø0.0551 – Ø0.5000 (1.400 – 12.700)
- For through hole application, left hand spiraled
  Ø0.1890 – Ø0.5000 (4.800 – 12.700)
- Cutting Material / coatings :

  Carbide / TiN, DBG-N
- Blind hole and through hole coolant style
- Metric cylindrical shank

➢ New DST version is coming soon !

Dihart® solid carbide reamer (Fullmax)

Full Carbide, solid

KOMET USA

5

for through hole machining	
Cutting material / coating	Order No.
HM	526.35
TiN	526.39
DBG-N	526.37

(..) = mm

Dimensions						
Cylindrical shank Ø D	Ø d x c	L	b	a ~	No. of teeth	
0.189 – 0.242 (4.800 – 6.159)	0.236 x 1.417 (6 x 36)	2.913 (74)	1.496 (38)	0.472 (12)	4	
0.243 – 0.267 (6.160 – 6.799)	0.315 x 1.417 (8 x 36)	3.583 (91)	2.165 (55)	0.472 (12)	4	
0.268 – 0.281 (6.800 – 7.159)	0.315 x 1.417 (8 x 36)	3.583 (91)	2.165 (55)	0.630 (16)	4	
0.282 – 0.320 (7.160 – 8.159)	0.315 x 1.417 (8 x 36)	3.583 (91)	2.165 (55)	0.630 (16)	6	
0.321 – 0.342 (8.160 – 8.699)	0.394 x 1.575 (10 x 40)	4.055 (103)	2.480 (63)	0.630 (16)	6	
0.343 – 0.399 (8.700 – 10.159)	0.394 x 1.575 (10 x 40)	4.055 (103)	2.480 (63)	0.787 (20)	6	
0.400 – 0.416 (10.160 – 10.599)	0.472 x 1.772 (12 x 45)	4.646 (118)	2.874 (73)	0.787 (20)	6	
0.417 – 0.478 (10.600 – 12.159)	0.472 x 1.772 (12 x 45)	4.646 (118)	2.874 (73)	0.945 (24)	6	
0.479 – 0.500 (12.160 – 12.700)	0.551 x 1.772 (14 x 45)	53197 (132)	3.425 (87)	1.102 (28)	6	

Order example:

Order No.	Bore diameter	Bore tolerance	Material or ASG
526.39	ø 0.197" (Ø 5 mm)	H8	GGG40 or ASG0501

Dihart® Fullmax

KOMET USA

5

Hightech for smaller diameters

DIHART Fullmax Reamers with cooling lubricant supply

With the integration of coolant supply, the new Fullmax reamers are the ideal solution for the high speed reaming of through-holes in steel and nodular cast iron.

The multi blade reamers in Monoblock construction rounds out the product portfolio of DIHART Reamax® product offering. Thus, we offer a comprehensive full tungsten carbide reamer program for the high speed machine cutting within the diameter ranges from 1.4 to 40 mm.

New are full-DST reamers in left hand fluted construction with optimal coolant supply. DST (Cermet) is a high speed cutting material, which is suitable for high-speed reaming and particularly for the treatment of un-alloyed and low-alloy steel to 1200N/mm firmness as well as for reaming of nodular cast iron. The new Fullmax reamers with coolant supply are available within the diameter ranges from 3.9 to 12.7 mm and as preferred diameters for 4, 5, 6, 8, 10, 12 mm.

BENEFITS for you:

- For very small hole diameters
- Extremely high rigidity for optimum machining processes
- Extremely high cutting performance through DIHART® cutting edge geometry
- Optimum coolant supply for long tool life

DIHART® Cutting Ring

KOMET USA

6

Dihart® Cutting Ring

Replaceable reaming Ring - expandable

6

- Dia. Range from ø2.386 - ø4.354 (60.600 - 110.599)
- Cutting material / coatings :

  Carbide, Cermet / TiN, DBG-N, DJC

Cutting Ring from ø0.6929 - ø2.385 (17.60 - 60.59)

and ø4.355 – ø11.811 (110.60 – 300.00)

available only on request

Dihart® Cutting Ring

Arbor program - through hole application

- Cylindrical shank inch & metric, short & long
  Ø2.3858 – Ø3.9605 (60.600 – 100.599)

- DAH flange
  Ø2.3858 – Ø4.3543 (60.600 – 110.559)

- ABS adaption
  Ø2.3858 – Ø4.3543 (60.600 – 110.559)

Dihart® Cutting Ring

Arbor program - blind hole application

- Cylindrical shank inch & metric, short & long
  Ø2.3858 – Ø3.9605 (60.600 – 100.599)

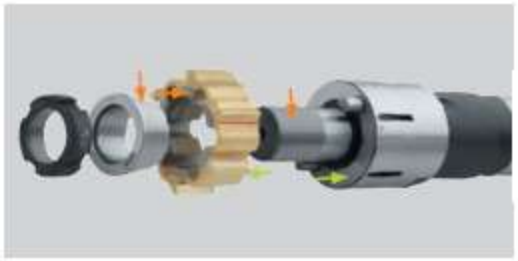
- DAH flange
  Ø2.3858 – Ø4.3543 (60.600 – 110.559)

- ABS adaption
  Ø2.3858 – Ø4.3543 (60.600 – 110.559)

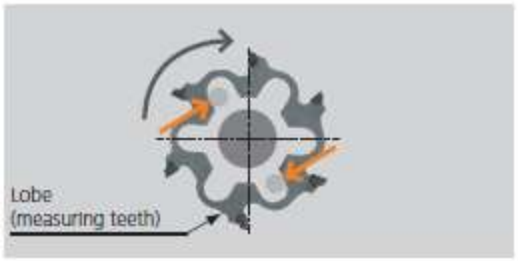
Assembly instructions: Cutting ring for through hole machining

KOMET USA

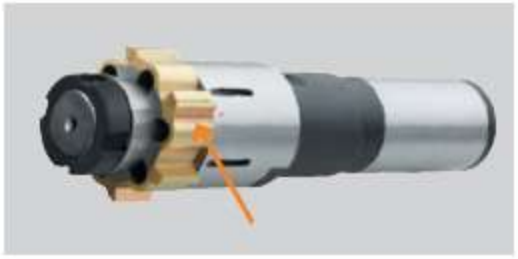
6



Arrow markings:
- light grease
- Face surfaces on holder and cutting ring are grease-free



The position for the drive pins is marked with a lobe or in red.
Before tightening and adjusting turn the cutting ring against the direction of machining until hitting the drive pins.



Please observe the marking on holder and cutting ring, check alignment of the coolant bores.

Adjust the diameter to the middle of the tolerance (counter-clockwise thread).

The diameter can only be measured at the marked cutting edges due to unequal angular position!

Measure the diameter

If the diameter was set too large, the conical ring must be loosened and the cutting ring readjusted.

Dihart® Duomax

Indexable inserts technology changes the rhythm of reaming

We used our entire wealth of experience for creating the new generation of DIHART cutting rings

The DIHART cutting ring for reaming of base and through-holes is established and because of its economic efficiency, often copied. It belongs to the modular multi blade tool systems, which offers the advantage that the cutting ring is easily exchangeable on the holder. The user receives a finished tool which is precision ground, which does not require any further adjustment of the individual cutters.

The indexable inserts for reaming have two fully usable edges. This saves additional orders which reduces tooling expenses and time as well as logistics expenditure with each set of indexable inserts. Exchanging this new cutting ring is faster because of the reduction in process steps in comparison to soldered Dihart cutting rings. Because of this, there is a longer life span of the base element which does not get thermally stressed any longer. In addition the precision and stability of the base elements continued to improve by optimization of the basic form.

Various cutting material and coating performances make it possible to adjust the reaming tool for multiple applications and perfect for working in different materials. In the future additional coatings are possible, which cannot be used on soldered tools. Altogether the flexibility regarding the cutting material and coating choice creates an increase of productivity for reaming processes. In addition, tolerance changes and changes of geometry can be managed fast and at little cost.

BENEFITS for you:

- New assembly for highest economy
- For large hole diameters
- Modular multi-base tool system
- Compensation for wear through simple re-adjustment
- A variety of cutting materials and coatings
- Highest flexibility

Assembly instructions

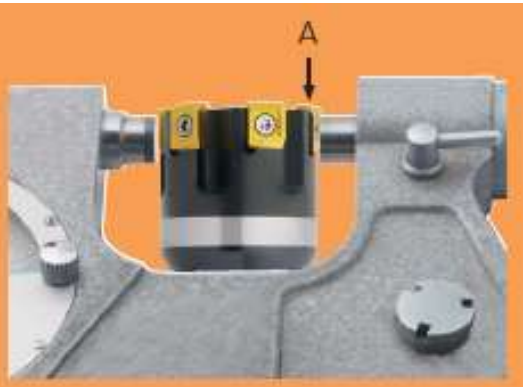
Cleaning:

Make sure that the insert seats ③ and indexable inserts are absolutely clean (grease-free). If necessary, remove tiny dust particles with compressed air!

Assembly:

- All indexable inserts and insert seats are marked with letters ①. This ensures correct assignment to the insert seat.
- The number markings ② ensure that all indexable inserts are positioned correctly.

Tighten the screw ④ (order no. N00 57710) to 22 in-lbs (2.5 Nm) (torque wrench order no. L05 00940)



Measuring the diameter:

The measuring tooth is located at letter A and is also marked on the holder with a spot ⑥. If the diameter is too large, loosen the conical screw ⑤ and turn it to the right to set the correct diameter. The conical screw ⑤ does not have to be removed completely!

Caution!

- Uneven angle division!
- There are 2 cutters 180° opposite = measuring tooth A.
- Measure the diameter at the front of the cutter (due to tapering, see illustration).
- Avoid damaging the cutters.
- When turning the indexable insert on an adjustable carrier, the diameter must be readjusted.

Patent applied for inside and outside Germany (WSP-Reiben)

55

Dihart® Insert reaming & Easy Specials

KOMET USA

8

Request froms

Inquiry Form: Fax to (800) 865-6638

DIHART® Insert Reaming

Design your own tool!

Unique: Reaming with Indexable Insert Technology

The use of inserts is revolutionizing multiple blade reaming and setting new levels in precision, function and economy.

We'll check your specifications for technical feasibility and reply promptly.

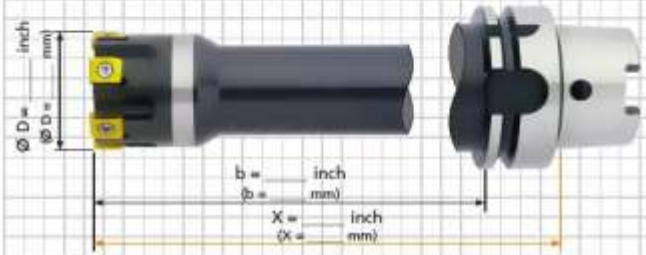
Company: Contact:

Department: E-Mail:

Telephone: Customer-No.:

Fax: Distributor:

Date:



Material to be machined:

Machining method

☐ through hole ☐ blind hole

Length of bore:

Interrupted cut:

☐ yes ☐ no

Bore tolerance:

Required surface finish:

Stock allowance on dia.:

Required cutting material/coating

☐ carbide ☐ TiN ☐ DBG-N

☐ DST ☐ DJC ☐ PCD

☐ DBF ☐ DBC

☐ other:

Other:

No. of inserts (Z)

for calculating the feed rate

f_z inch/tooth (mm/tooth):

Ø D	Z
1.7953 – 3.1338 (45.600 – 79.599)	6
3.1339 – 3.9605 (79.600 – 100.599)	8
3.9606 – 4.3542 (100.600 – 110.599)	10
4.3543 – 5.4960 (110.600 – 139.599)	12

Connection (Type and size)

☐ CAT _____

☐ HSK _____ DIN 69893 A

☐ ISO _____ DIN 69871 AD/B

☐ BT _____ JIS B 6339 AD/B (MAS 403 BT)

☐ DAH _____

☐ ABS _____

☐ Ø _____ inch

☐ (Ø _____ mm) similar DIN 1835

other ☐ _____

DIHART® Easy Special™

Inquiry Form: Fax to (800) 865-6638

Design your own tool!

No standard solution within your range? Dimensions not what you require?

Easy Special™ makes it possible for you create your own combination of standard modules in the widest variety of dimensions.

Select the series, define the effective length and choose the desired adapter for the tool.

We'll check your specifications for technical feasibility and reply promptly.

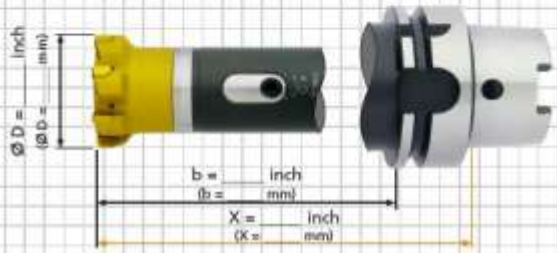
Company: Contact:

Department: E-Mail:

Telephone: Customer-No.:

Fax: Distributor:

Date:



Material to be machined:

Machining method

☐ through hole ☐ blind hole

Length of bore:

Interrupted cut:

☐ yes ☐ no

Bore tolerance:

Required surface finish:

Stock allowance on dia.:

Required cutting material/coating

☐ carbide ☐ TiN ☐ DBG-N

☐ DST ☐ DJC ☐ PCD

☐ DBF ☐ DBC

☐ other:

Other:

Cutter Style

☐ Reamax® TS

☐ Reamax®

☐ Monomax®

☐ Solid carbide reamer

☐ Cutting ring

Connection (Type and size)

☐ CAT _____

☐ HSK _____ DIN 69893 A

☐ ISO _____ DIN 69871 AD/B

☐ BT _____ JIS B 6339 AD/B (MAS 403 BT)

☐ DAH _____

☐ ABS _____

☐ Ø _____ inch

☐ (Ø _____ mm) similar DIN 1835

other ☐ _____

Dihart® PCD Reamer

Carbide, solid

- Dia.range 2-effective
  Ø0.1574 – Ø0.7913 (4.000 – 20.100)
- Dia.range 4-effective
  Ø0.3780 – Ø0.7913 (9.601 – 20.100)
- Blind hole and through hole coolant style
- Metric cylindrical shank

Dihart® Compensation Holder

DAH® Compensation Holder

- HSK-A adapter
- ABS® adapter
- ISO/JIS adapter
- BT adapter
- CAT adapter
- DAH® 50HS Hydraulic adapter
  HSK,ISO/JIS, BT, CAT

Dihart® Compensation Holder

DAH® Bushings

- Hydraulic chuck
  only for metric diameters

- ABS® bushing

- Cylindrical shank bushing
  only for inch diameters

Dihart® Floating Holder

Floating holders for lathe applications

- VDI connection DIN69880

- Cylindrical shank similar to DIN1835

Dihart® Rapid Set Head

Replaceable reaming Head - solid

- **Not anymore in catalogue, but still on price list !**
- **For existing customers and emergencies only !**

- Dia. range from ø0.3779 – ø2.3622 (9.600 – 60.000)

- Straight and left hand fluted

- Cutting material / coatings :
  DST, HM / TiN, DBG-N, DJC

Dihart® Rapid Set Head

Arbor program – through hole application

- **Not anymore in catalogue, but still on price list !**
- **For existing customers and emergencies only !**

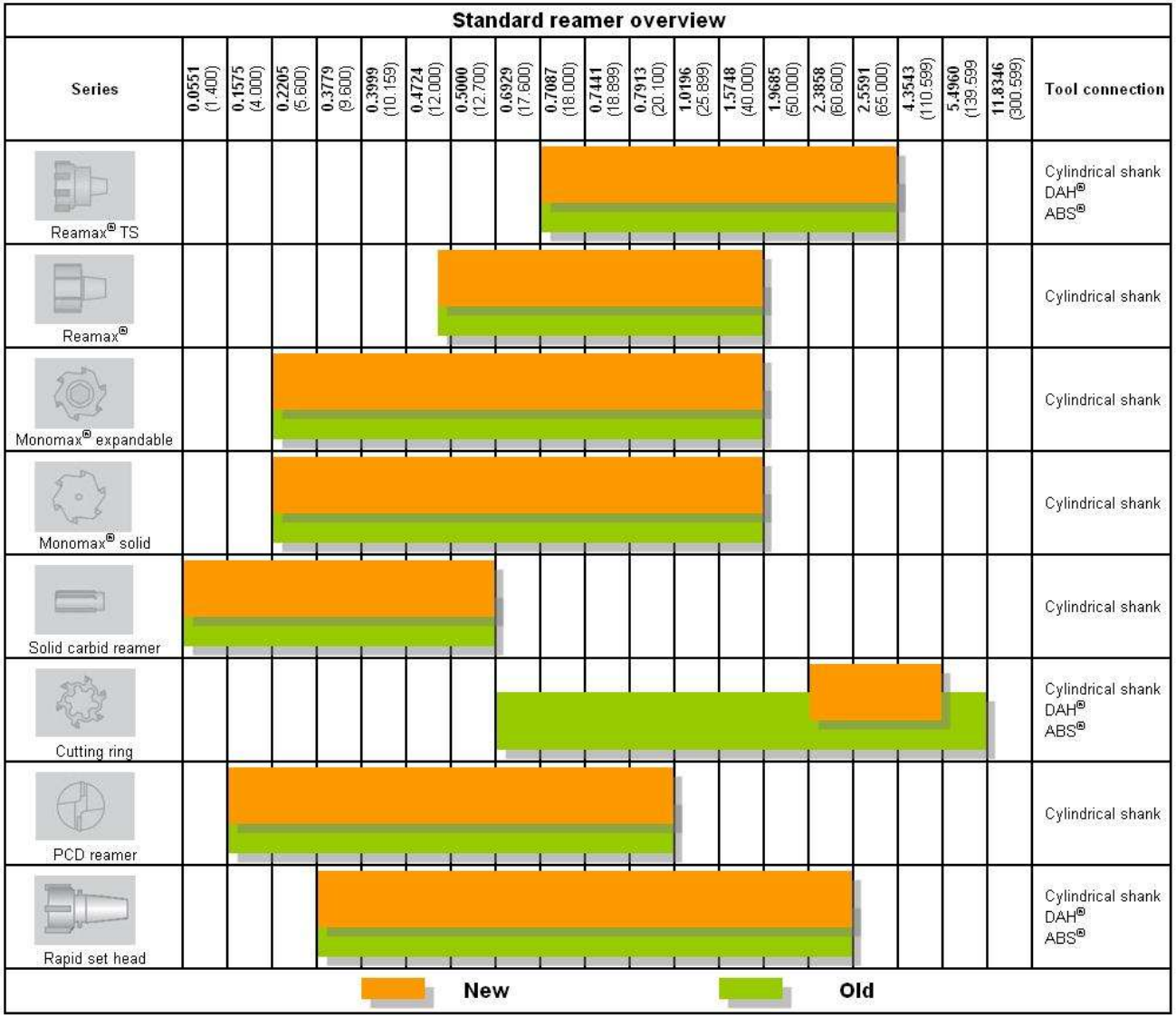
- Cylindrical shank inch & metric,
  short & long
  Ø0.3779 – Ø2.3622 (9.600 – 60.000)

- DAH flange
  short & long
  Ø0.4961 – Ø2.3622 (12.600 – 60.000)

- ABS adaption
  Ø2.3858 – Ø4.3543 (60.600 – 110.559)

What is New or Obsolete

Program Overview new & old



Competitive comparison

KOMET USA

- Mapal Stockoutil

- Mapal HSF

- Iscar Bayonet-reamer

- Urma Circo Tec RX

- Seco Prezimaster

Dihart® Specials