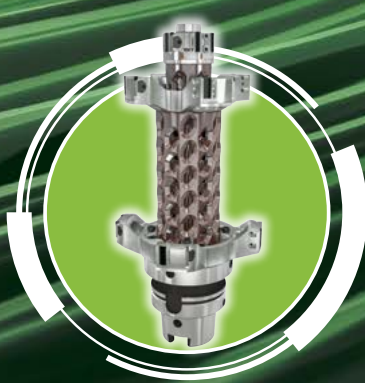




ISCAR'S MACHINING SOLUTIONS FOR MANUFACTURING

Electric Vehicles



T7089961



QUICK 3D



THE STANDARDS INSTITUTION OF ISRAEL



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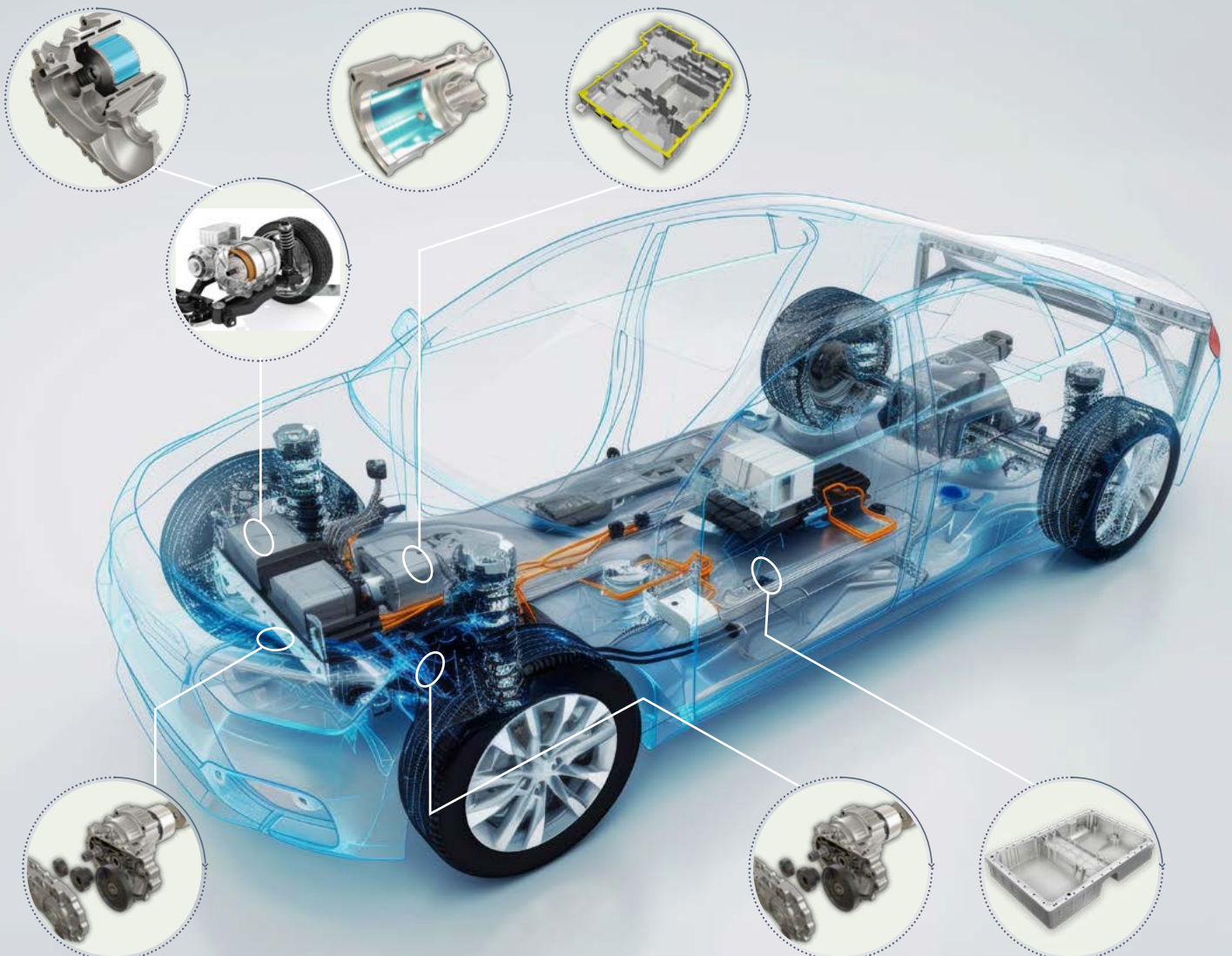
Quality Standard

ISCAR has been certified by the prestigious Standards Institution, as being in full compliance to ensure delivery of the finest quality goods. Quality control facilities include the metallurgical laboratory, raw metal testing, an online testing procedure and a machining center for tool performance testing and final product inspection. Only the finest products are packaged for entry into ISCAR's inventory.

ISCAR Drives You to The Next Generation

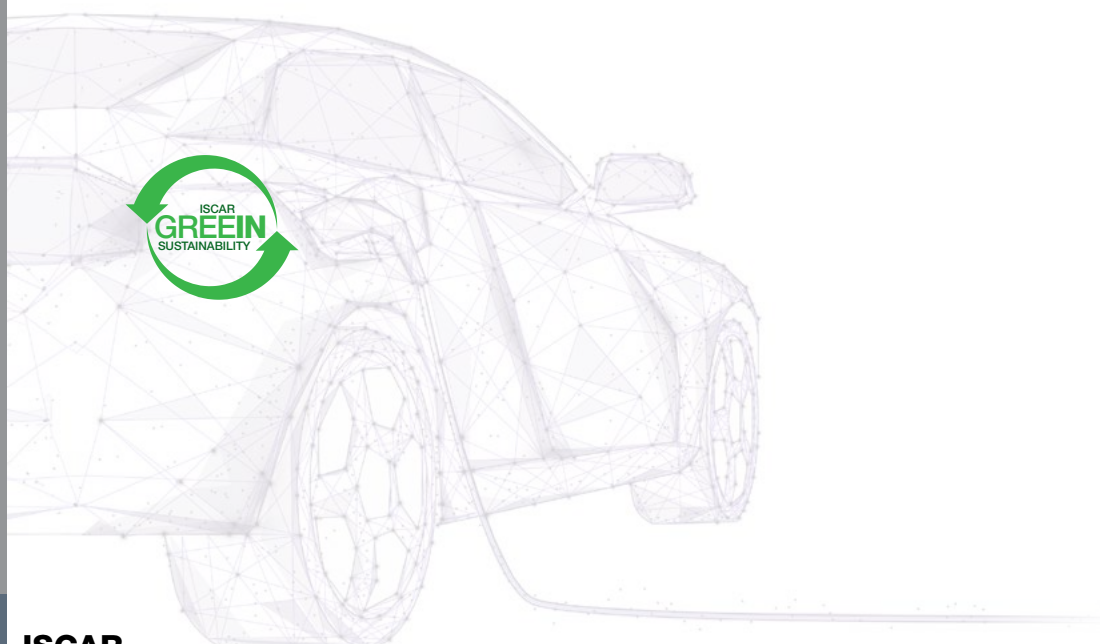
Public awareness of global warming, together with a pressing concern to create and maintain a clean environment, has led to a series of legislations worldwide that is forcing automakers to decrease CO2 emissions. Many countries have already declared a ban on sales of internal combustion vehicles in the near future. Apart from improving fuel consumption, downsizing engines and making lighter vehicles, automakers must turn to new technologies in order to cope with these emission limitations. A rapid increase in battery electric vehicle development, manufacture and implementation, shows that electric vehicles are not only the future but are, in fact, the present. The automotive industry is on the brink of colossal changes and soon our perception of cars and transportation may alter completely.

ISCAR, a company with many years of experience in the production of metal cutting tools, offers unique solutions for the new generation. As a leader in providing productive and cost effective machining solutions, we strive to be up to date with all the new trends and technologies and be a part of a brighter, greener future.



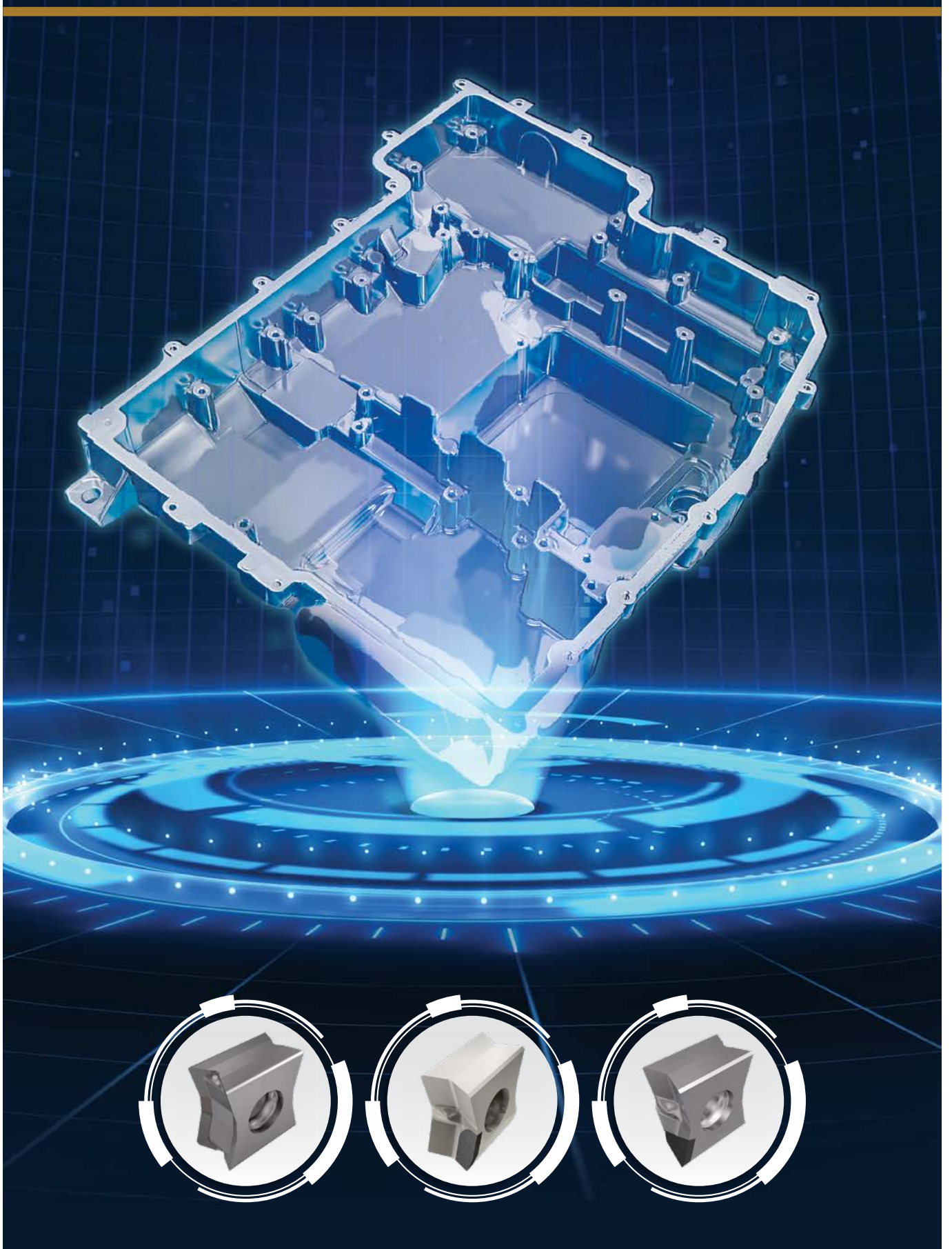
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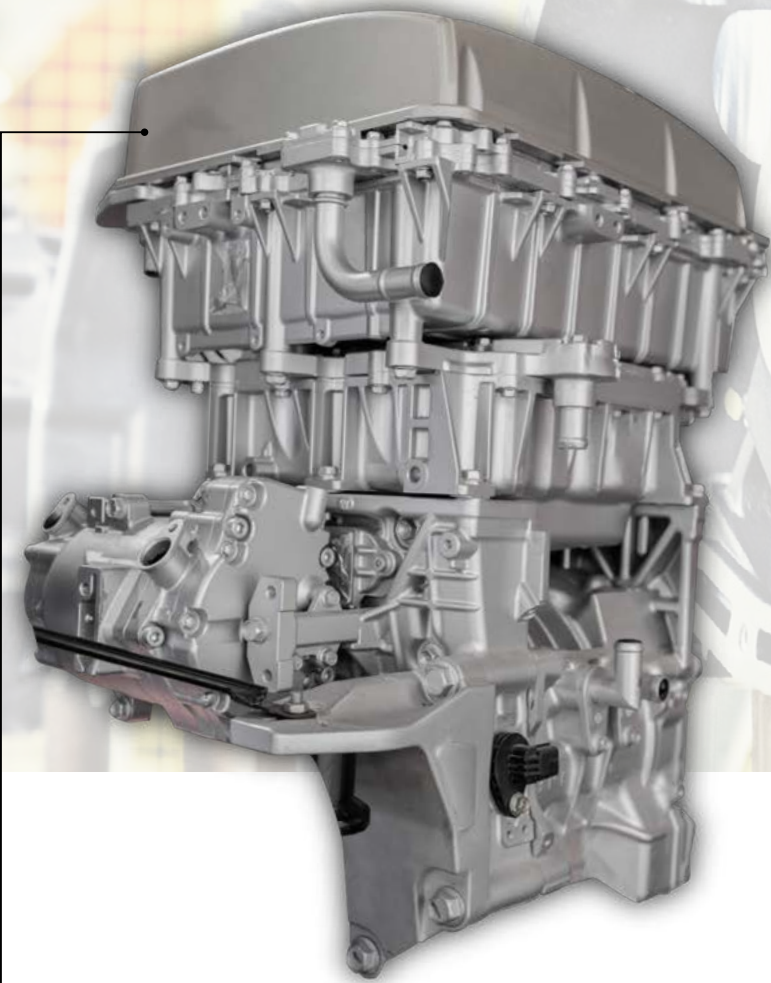
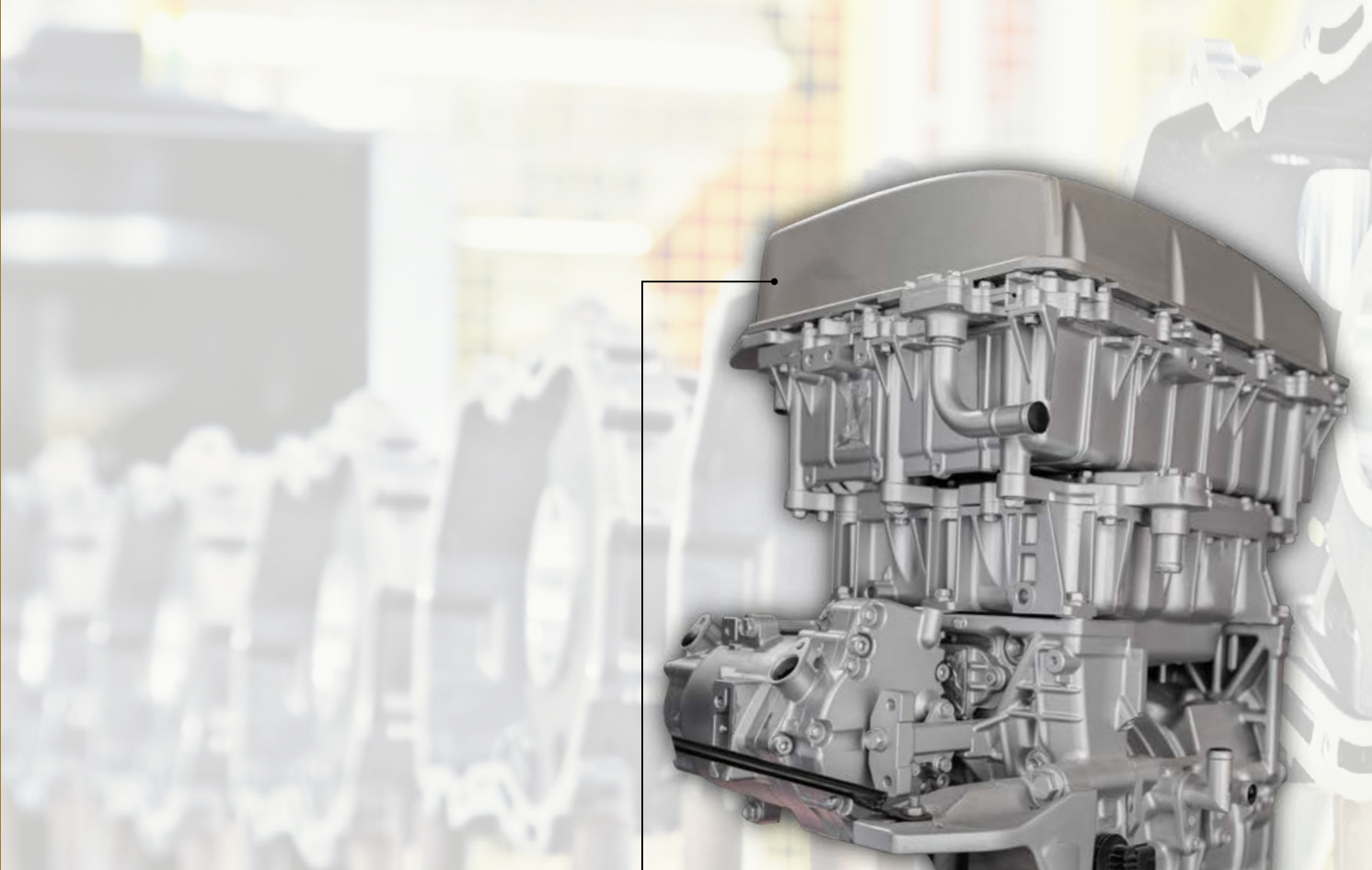
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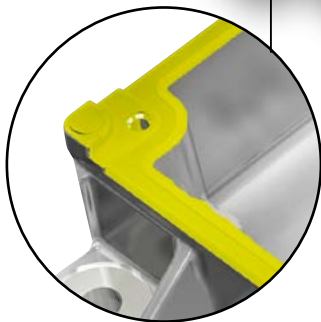
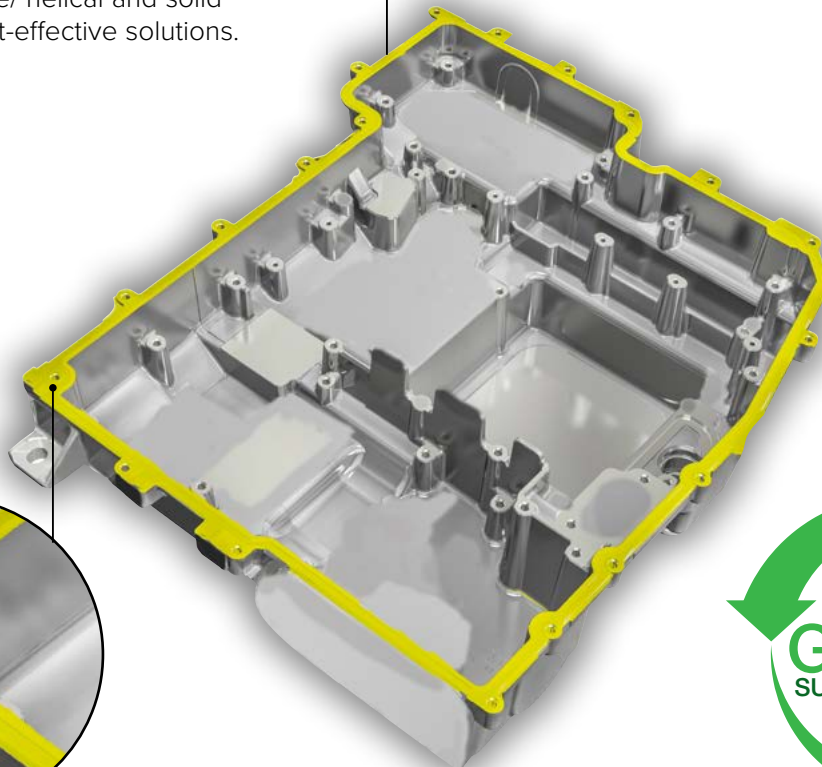
INVERTER CASE



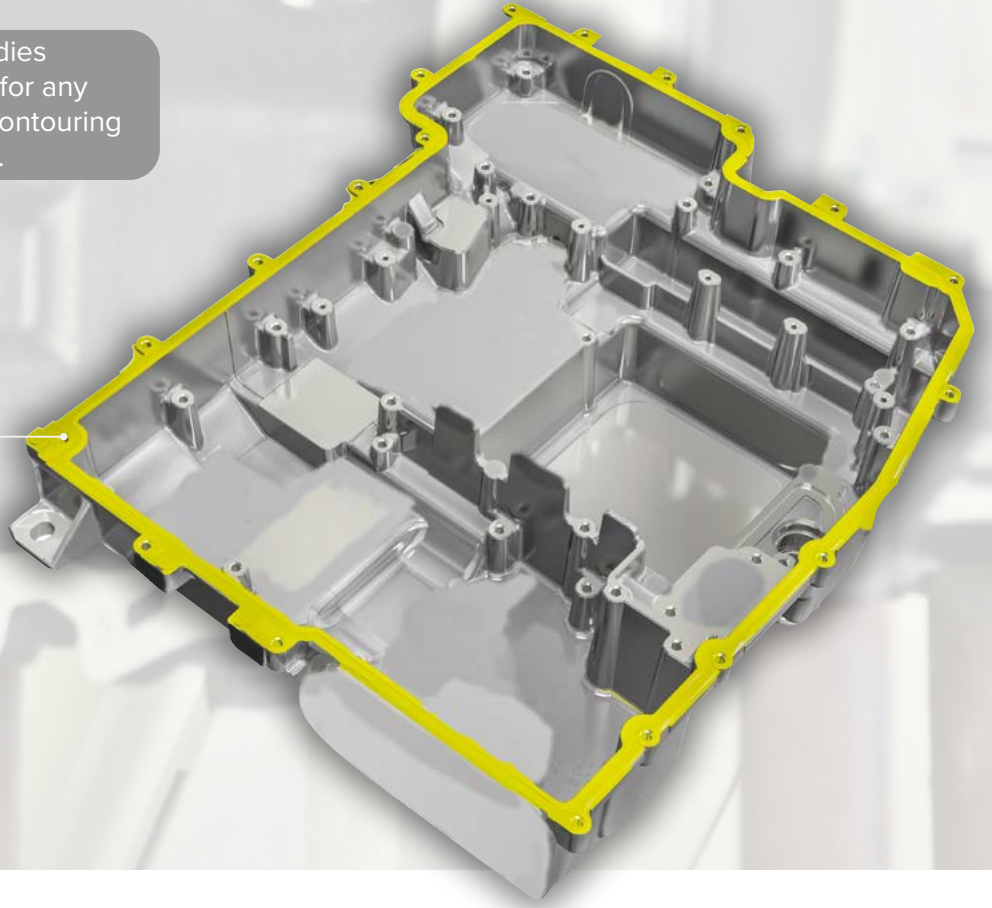


Milling Operations

Many milling options are available to approach this component in the most efficient way. Indexable/ helical and solid tools are the most cost-effective solutions.



The R&D team of ISCAR studies the best productive options for any application, from boring to contouring to OD applications changed.



Contouring

Finishing spigot's shape



MONOBLOCK



BRAZED TOOL



PCD

Reaming

High feed solutions with brazed PCD cutting edges



MONOBLOCK



BRAZED TOOL



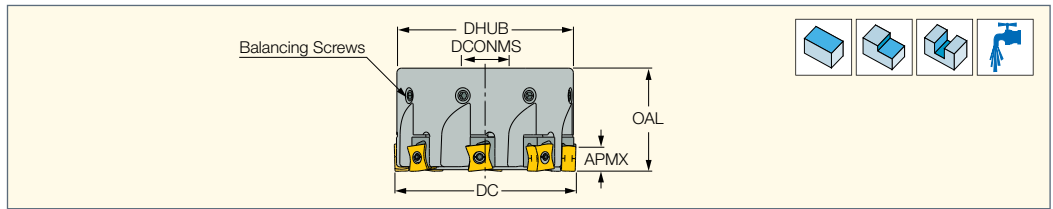
PCD



ALUTANG

F90LN-FR CA11

Adjustable 90° Face Mills (used mainly for PCD/CBN inserts)



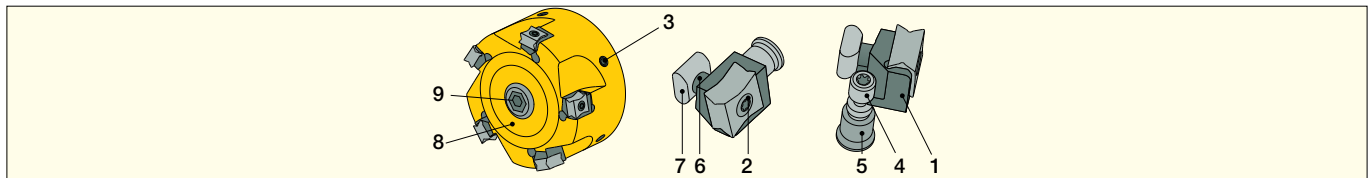
Designation	DC	CICT ⁽¹⁾	OAL	APMX ⁽²⁾	DHUB	DCONMS	Arbor	RPMX ⁽³⁾	
F90LN D050-04-16SFR CA11	50.00	4	40.00	5.00	38.00	16.00	A	24700	0.39
F90LN D063-04-22AFR CA11	63.00	4	45.00	5.00	60.40	22.00	B	22000	0.29
F90LN D063-06-22AFR CA11	63.00	6	45.00	5.00	60.40	22.00	B	22000	0.30
F90LN D080-05-27AFR CA11	80.00	5	45.00	5.00	77.00	27.00	B	19000	0.48
F90LN D080-08-27AFR CA11	80.00	8	45.00	5.00	77.00	27.00	B	19000	0.49
F90LN D100-06-32AFR CA11	100.00	6	55.00	5.00	97.00	32.00	B	15500	0.89
F90LN D100-10-32AFR CA11	100.00	10	55.00	5.00	97.00	32.00	B	15500	0.95
F90LN D125-08-40AFR CA11	125.00	8	63.00	5.00	122.00	40.00	B	13800	1.72
F90LN D125-12-40AFR CA11	125.00	12	63.00	5.00	122.00	40.00	B	13800	1.75
F90LN D160-14-40AFR CA11	160.00	14	63.00	5.00	157.00	40.00	C	12200	3.02

• The tool bodies are made from aluminum (AFR) and the 50 mm tools are made from steel (SFR)

⁽¹⁾ Number of inserts (or edges for solid tool)

⁽²⁾ Please refer to PCD and CBN specific insert D.O.C. recommendations

⁽³⁾ Maximum RPM



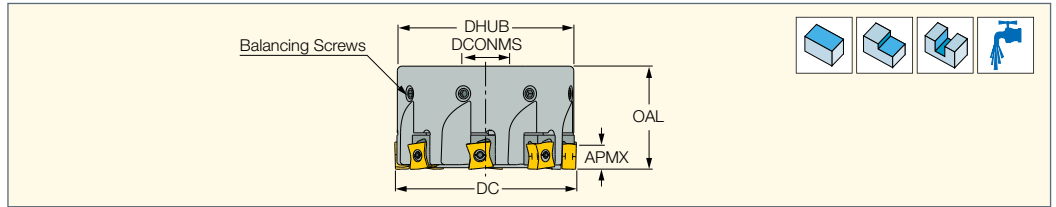
Spare Parts	Designation	Part Number
Cartridge	CA 90 AL-R-LN11	1
Insert clamping screw	SR 34-550	2
Balancing screw	SR M6X10 DIN 913 TUFLOK	3
Pocket axial adjustment screw	SR 11800875	4
Bushing for pocket axial adjustment screw	SR TC-604	5
Cartridge screw bushing	SR TC-873	6
Cartridge clamping nut	NUT 11800872	7
Blade key	BLD T10/S7	
Handle	SW6-SD	
Balancing screw key	HW 3.0	

Tool	Coolant Cover 8	Coolant Cover Screw 9
F90LN D050-04-16SFR CA11	COVER CC5 D050-CA11	SR M10-35C
F90LN D063-04-22AFR CA11	COVER D063-CA11	SR M10-35C
F90LN D063-06-22AFR CA11	COVER D063-CA11	SR M10-35C
F90LN D080-05-27AFR CA11	COVER D080-CA11	SR M12-35C
F90LN D080-08-27AFR CA11	COVER D080-CA11	SR M12-35C
F90LN D100-06-32AFR CA11	COVER D100-CA11	SR M16-40C
F90LN D100-10-32AFR CA11	COVER D100-CA11	SR M16-40C
F90LN D125-08-40AFR CA11	COVER D125-CA11	SR M20-40C
F90LN D125-12-40AFR CA11	COVER D125-CA11	SR M20-40C
F90LN D160-14-40AFR CA11	COVER D160-CA11	SR M20-40C



F90LN-FR CA11

Adjustable 90° Face Mills (used mainly for PCD/CBN inserts)



Spare Parts

Designation							
F90LN D050-04-16SFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)		NUT 11800872	
F90LN D063-04-22AFR CA11	CA 90 AL-R-LN11	SR 34-550	SW6-SD	BLD T10/S7 ^(b)		NUT 11800872	SR TC-604
F90LN D063-06-22AFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)		NUT 11800872	SR TC-604
F90LN D080-05-27AFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)	COVER D080-CA11	NUT 11800872	SR TC-604
F90LN D080-08-27AFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)	COVER D080-CA11	NUT 11800872	SR TC-604
F90LN D100-06-32AFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)	COVER D100-CA11	NUT 11800872	SR TC-604
F90LN D100-10-32AFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)	COVER D100-CA11	NUT 11800872	SR TC-604
F90LN D125-08-40AFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)	COVER D125-CA11	NUT 11800872	SR TC-604
F90LN D125-12-40AFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)	COVER D125-CA11	NUT 11800872	SR TC-604
F90LN D160-14-40AFR CA11	CA 90 AL-R-LN11	SR 34-550 ^(a)	SW6-SD	BLD T10/S7 ^(b)		NUT 11800872	SR TC-604

Spare Parts

Designation							
F90LN D050-04-16SFR CA11		BLD T10/S7-2.8	SR M6X8 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D063-04-22AFR CA11	SR M10-35C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D063-06-22AFR CA11	SR M10-35C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D080-05-27AFR CA11	SR M12-35C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D080-08-27AFR CA11	SR M12-35C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D100-06-32AFR CA11	SR M16-40C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D100-10-32AFR CA11	SR M16-40C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D125-08-40AFR CA11	SR M20-40C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D125-12-40AFR CA11	SR M20-40C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875
F90LN D160-14-40AFR CA11	SR M20-40C	BLD T10/S7-2.8	SR M6X10 DIN913 TL180	HW 3.0/5	SR TC-873		SR 11800875

^(a) Recommended tightening torque: 3.5 N*m

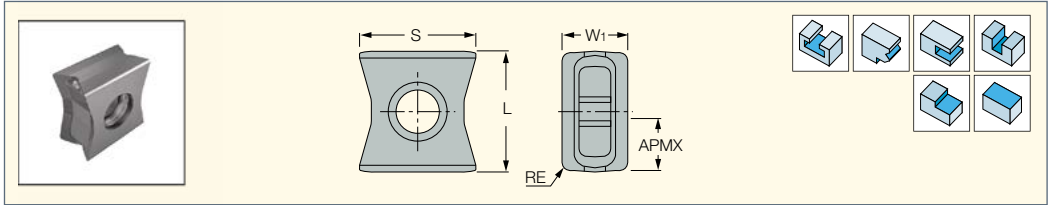
^(b) For limiting torque, use optional 7007383 BLD 4 T10-3.2NM blade & 7007220 HSA 4 1-5NM adjustable handle.





LNAR 1106

Tangentially Clamped Inserts with Positive Polished Rake



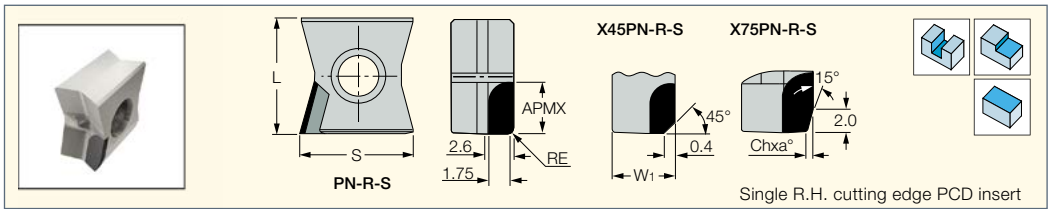
Designation	Dimensions						IC07	Recommended Machining Data	
	W1	L	S	RE	APMX ⁽¹⁾	a _p (mm)		f _z (mm/t)	
LNAR 1106 PN-N-P	6.00	11.16	10.72	0.50	5.00	●	1.50-5.00	0.15-0.20	

- Polished rake and sharp cutting edge
- 4 R.H. and 4 L.H. cutting edges
- Recommended for machining high silicon and cast aluminum, titanium and magnesium
- ⁽¹⁾ D.O.C. when the insert is on the cutter



LNAR 1106 (PCD)

Tangentially Clamped Milling Inserts with a Brazed PCD Tip for Machining Aluminum



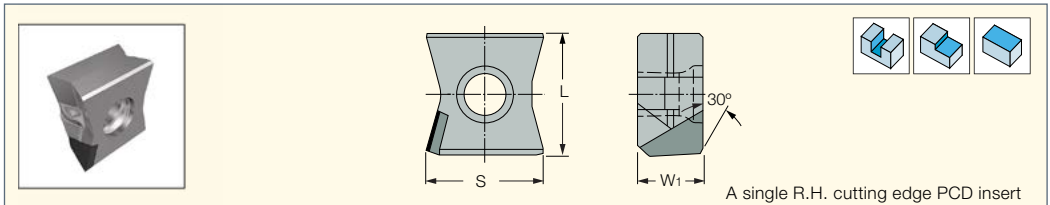
Designation	Dimensions							Tough ↔ Hard		Recommended Machining Data	
	W1	L	S	RE	Ch	a°	APMX	ID8	ID6	a _p (mm)	f _z (mm/t)
LNAR 110604PN-R-S	6.00	11.11	10.76	0.40	-	90	5.00	●	●	0.10-2.00	0.10-0.25
LNAR 110604X45PN-R-S	6.00	11.11	10.70	-	0.4	45	5.00	●	●	0.10-2.00	0.10-0.25
LNAR 110620X75PN-R-S	6.00	11.11	10.72	-	0.15	75	5.00	●	●	0.10-2.00	0.10-0.25

- The chamfered corner used for reduced chipping on the machined component edges
- Use ID5 for aluminum alloys with <12% silicon
- Use ID8 for aluminum alloys with >12% silicon.
- The inserts are supplied with spare screws.



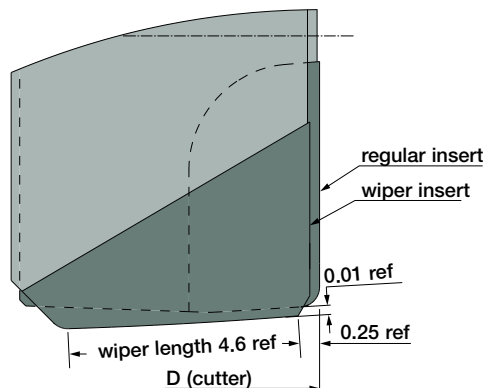
LNAR 1106PN-R-S-W (PCD)

Tangentially Clamped Wiper Milling Inserts with a Brazed PCD Tip for Machining Aluminum



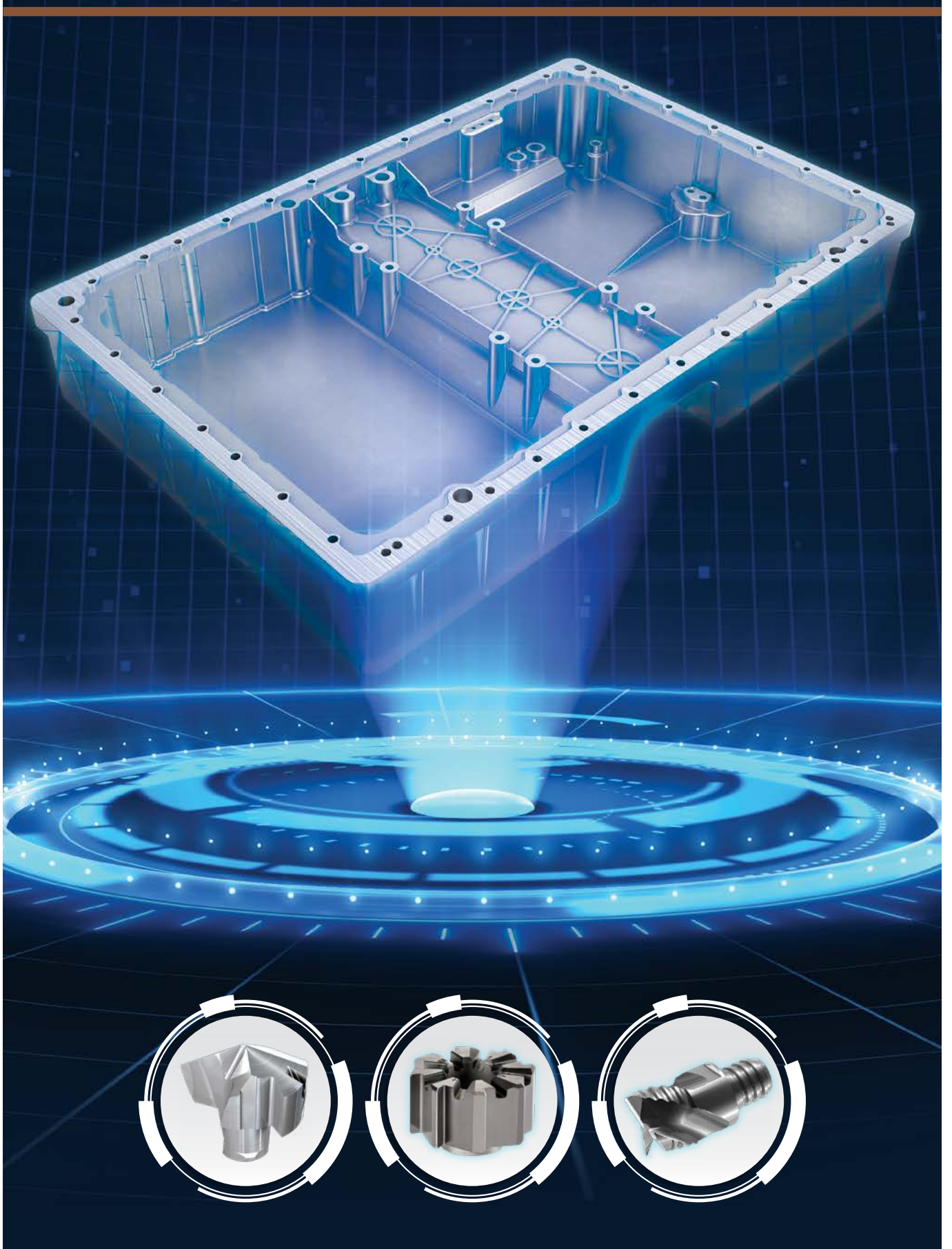
Designation	Dimensions			ID5	Recommended Machining Data
	W1	L	S		f _z (mm/t)
LNAR 1106PN-R-S-W	5.98	11.26	10.75	●	0.10-0.25

- The chamfered corner is used for reduced chipping on the machined component edges.
- The wiper insert should not be used with LNAR 110620x75PN-R-S inserts.





BATTERY CASE



Drilling Operations

ISCAR offers a number of options for drilling aluminum, including ICN heads designed with a sharp cutting edge and polished rake face, and ICG heads with a chip splitter for better chip removal when working with a long overhang.



Option 1

Special **SUMOCHAM** step drill to machine blind holes with a rear chamfer. The step drill is based on the standard **SUMOCHAM** ICN heads with rear AOGT 04 standard inserts.



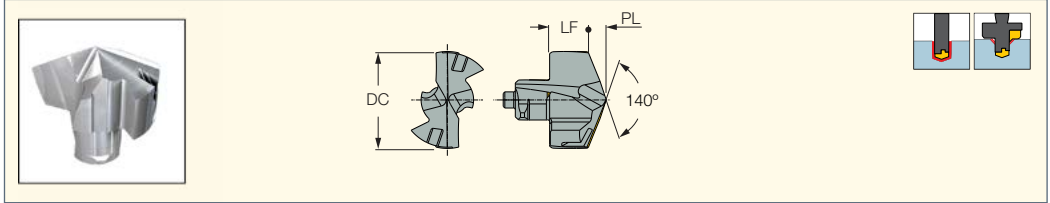
AOGT - Small sharp polished insert

Option 2

Multifunctional tools with PCD brazed cutting edges



ICN
Exchangeable SUMOCHAM
Drilling Heads for Machining
ISO N Materials




Designation	Dimensions						IC08
	DC	PL	LF	SIG	SSC ⁽¹⁾		
ICN 0476	4.76	0.710	2.84	140	4.0	●	
ICN 051	5.10	0.680	3.02	140	5.0	●	
ICN 054	5.40	0.730	2.97	140	5.0	●	
ICN 0635	6.35	1.020	2.98	140	6.0	●	
ICN 0794	7.94	1.180	3.42	140	7.0	●	
ICN 0952	9.52	1.440	4.36	140	9.0	●	
ICN 100	10.00	1.500	4.70	140	10.0	●	
ICN 102	10.20	1.540	4.66	140	10.0	●	
ICN 103	10.30	1.550	4.65	140	10.0	●	
ICN 105	10.50	1.590	4.61	140	10.0	●	
ICN 107	10.70	1.630	4.57	140	10.0	●	
ICN 108	10.80	1.650	4.55	140	10.0	●	
ICN 110	11.00	1.670	4.93	140	11.0	●	
ICN 111	11.10	1.690	4.91	140	11.0	●	
ICN 115	11.50	1.760	4.84	140	11.0	●	
ICN 119	11.90	1.830	4.77	140	11.0	●	
ICN 120	12.00	1.820	5.18	140	12.0	●	
ICN 123	12.30	1.870	5.13	140	12.0	●	
ICN 125	12.50	1.910	5.09	140	12.0	●	
ICN 127	12.70	1.950	5.05	140	12.0	●	
ICN 130	13.00	1.960	5.64	140	13.0	●	
ICN 135	13.50	2.050	5.55	140	13.0	●	
ICN 137	13.70	2.090	5.51	140	13.0	●	
ICN 140	14.00	2.120	6.03	140	14.0	●	
ICN 141	14.10	2.140	6.01	140	14.0	●	
ICN 142	14.20	2.160	5.99	140	14.0	●	
ICN 1427	14.27	2.170	5.98	140	14.0	●	
ICN 145	14.50	2.210	5.94	140	14.0	●	
ICN 147	14.70	2.250	5.90	140	14.0	●	
ICN 150	15.00	2.270	6.46	140	15.0	●	
ICN 157	15.70	2.400	6.33	140	15.0	●	
ICN 158	15.80	2.420	6.31	140	15.0	●	
ICN 1587	15.87	2.430	6.30	140	15.0	●	
ICN 1588	15.88	2.430	6.30	140	15.0	●	
ICN 160	16.00	2.420	6.88	140	16.0	●	
ICN 165	16.50	2.510	6.79	140	16.0	●	
ICN 167	16.70	2.550	6.75	140	16.0	●	
ICN 170	17.00	2.590	7.31	140	17.0	●	
ICN 175	17.50	2.680	7.22	140	17.0	●	
ICN 180	18.00	2.730	7.77	140	18.0	●	
ICN 185	18.50	2.820	7.68	140	18.0	●	
ICN 190	19.00	2.880	8.12	140	19.0	●	
ICN 1905	19.05	2.890	8.11	140	19.0	●	
ICN 195	19.50	2.970	8.03	140	19.0	●	
ICN 2062	20.62	3.130	8.47	140	20.0	●	
ICN 2222	22.22	3.360	9.40	140	22.0	●	
ICN 234	23.40	3.530	9.80	140	23.0	●	
ICN 250	25.00	3.800	10.70	140	25.0	●	
ICN 254	25.40	3.870	10.63	140	25.0	●	
ICN 2857	28.57	4.350	11.87	140	28.0	●	
ICN 3175	31.75	4.900	13.06	140	31.0	●	

• The drill is manufactured with a sharp cutting edge and polished flutes

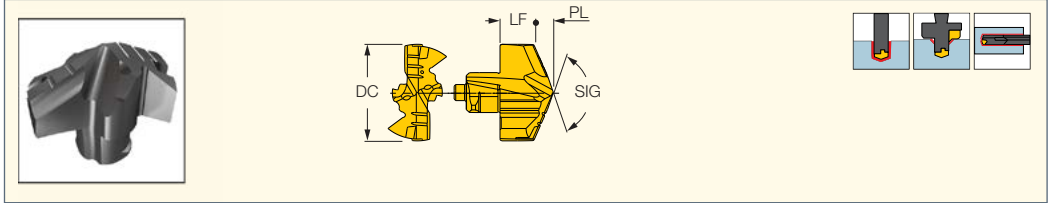
⁽¹⁾ Seat size code

Spare Parts

Designation	
ICN 0476	SK DCN 4-4.99
ICN 051	SK DCN 5-5.99
ICN 054	SK DCN 5-5.99

SUMOCHAM

ICG
Exchangeable Chip Splitting
SUMOCHAM Drilling
Heads, for Machining ISO
M and ISO P Materials



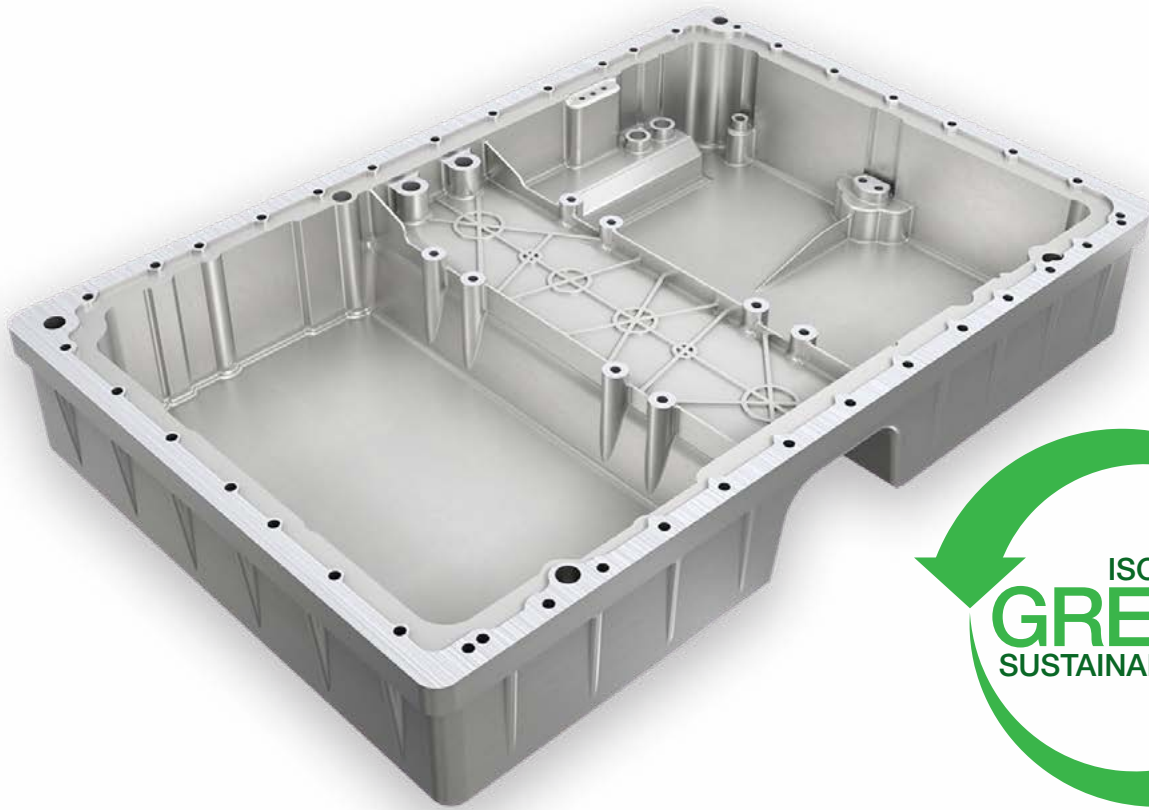
Designation	Dimensions						IC908
	DC	LF	PL	SIG	SSC ⁽¹⁾		
ICG 140	14.00	5.08	2.770	130	14.0	●	
ICG 141	14.10	5.06	2.790	130	14.0	●	
ICG 142	14.20	5.04	2.810	130	14.0	●	
ICG 143	14.30	5.01	2.840	130	14.0	●	
ICG 145	14.50	4.97	2.880	130	14.0	●	
ICG 146	14.60	4.95	2.900	130	14.0	●	
ICG 147	14.70	4.92	2.930	130	14.0	●	
ICG 150	15.00	5.45	2.980	130	15.0	●	
ICG 151	15.10	5.43	3.000	130	15.0	●	
ICG 152	15.20	5.40	3.030	130	15.0	●	
ICG 153	15.30	5.38	3.050	130	15.0	●	
ICG 155	15.50	5.33	3.100	130	15.0	●	
ICG 157	15.70	5.28	3.150	130	15.0	●	
ICG 159	15.90	5.23	3.200	130	15.0	●	
ICG 160	16.00	5.81	3.190	130	16.0	●	
ICG 162	16.20	5.76	3.240	130	16.0	●	
ICG 163	16.30	5.74	3.260	130	16.0	●	
ICG 165	16.50	5.69	3.310	130	16.0	●	
ICG 166	16.60	5.67	3.330	130	16.0	●	
ICG 167	16.70	5.64	3.360	130	16.0	●	
ICG 168	16.80	5.62	3.380	130	16.0	●	
ICG 170	17.00	6.20	3.400	130	17.0	●	
ICG 172	17.20	6.16	3.440	130	17.0	●	
ICG 173	17.30	6.14	3.460	130	17.0	●	
ICG 175	17.50	6.09	3.510	130	17.0	●	
ICG 176	17.60	6.07	3.530	130	17.0	●	
ICG 177	17.70	6.05	3.550	130	17.0	●	
ICG 178	17.80	6.02	3.580	130	17.0	●	
ICG 180	18.00	6.60	3.600	130	18.0	●	
ICG 183	18.30	6.53	3.670	130	18.0	●	
ICG 185	18.50	6.48	3.720	130	18.0	●	
ICG 190	19.00	6.71	3.990	130	19.0	●	
ICG 193	19.30	6.64	4.060	130	19.0	●	
ICG 195	19.50	6.59	4.110	130	19.0	●	
ICG 200	20.00	7.19	4.010	130	20.0	●	
ICG 201	20.10	7.17	4.030	130	20.0	●	
ICG 203	20.30	7.12	4.080	130	20.0	●	
ICG 204	20.40	7.09	4.110	130	20.0	●	
ICG 205	20.50	7.07	4.130	130	20.0	●	
ICG 210	21.00	7.41	4.170	130	21.0	●	
ICG 215	21.50	7.29	4.290	130	21.0	●	
ICG 219	21.90	7.19	4.390	130	21.0	●	
ICG 220	22.00	7.99	4.370	130	22.0	●	
ICG 221	22.10	7.97	4.390	130	22.0	●	
ICG 222	22.20	7.95	4.410	130	22.0	●	
ICG 225	22.50	7.87	4.490	130	22.0	●	
ICG 228	22.80	7.80	4.560	130	22.0	●	
ICG 230	23.00	8.38	4.550	130	23.0	●	
ICG 235	23.50	8.26	4.670	130	23.0	●	
ICG 237	23.70	8.22	4.710	130	23.0	●	
ICG 240	24.00	8.81	4.690	130	24.0	●	
ICG 245	24.50	8.70	4.800	130	24.0	●	
ICG 248	24.80	8.63	4.870	130	24.0	●	
ICG 250	25.00	8.86	5.040	130	25.0	●	
ICG 253	25.30	8.79	5.110	130	25.0	●	
ICG 254	25.40	8.77	5.130	130	25.0	●	
ICG 255	25.50	8.74	5.160	130	25.0	●	
ICG 257	25.70	8.70	5.200	130	25.0	●	
ICG 259	25.90	8.65	5.250	130	25.0	●	

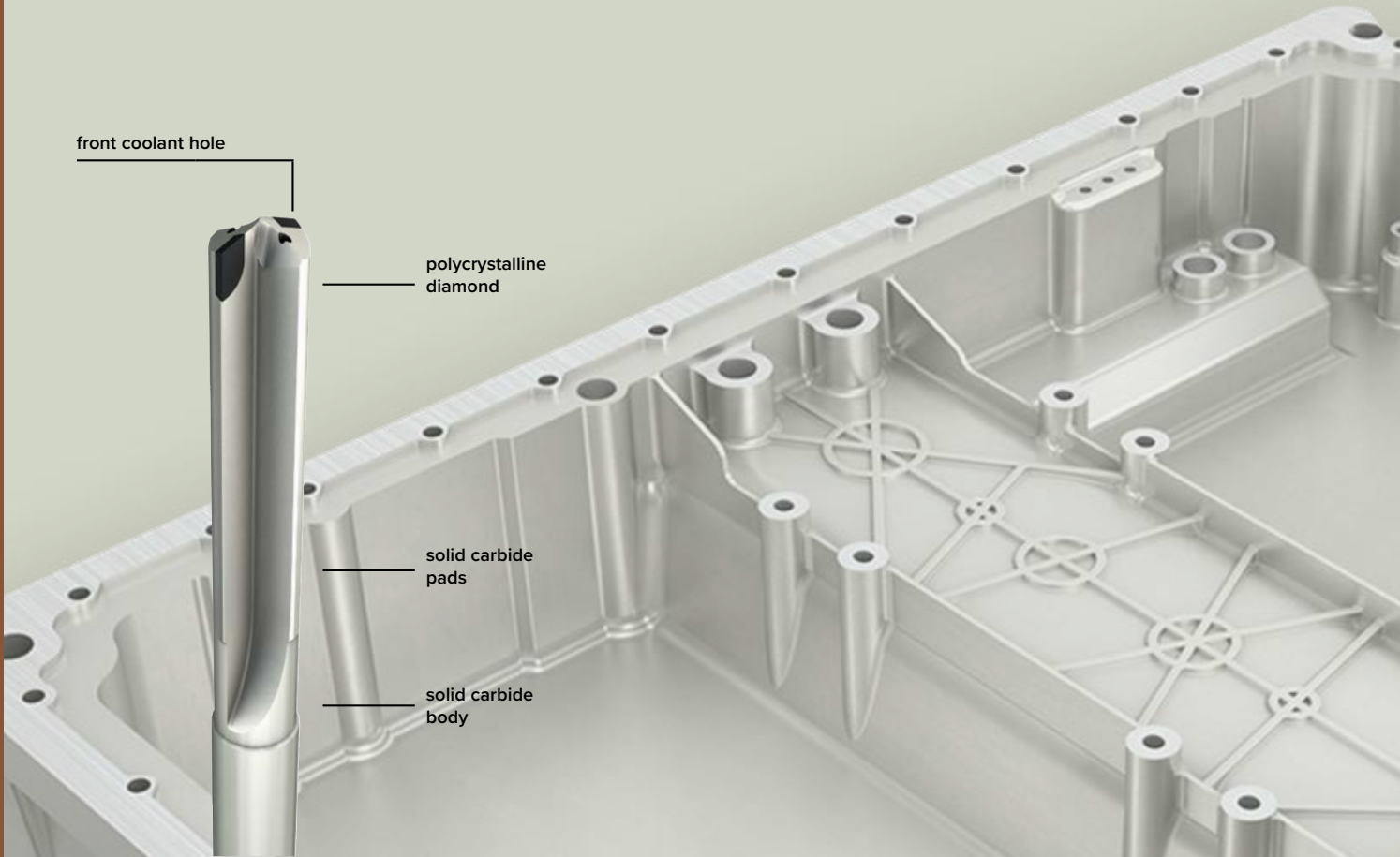
• Drilling head equipped with chip breaker and chip splitter
(1) Seat size code

Recommended Machining Conditions

Material Group	Material Number	Cutting Speed V_c m/min	Feed mm/rev		
			D=14-15.99	D=16-19.9	D=20-25.9
N	21	80-200-300	0.35 0.45 0.5	0.4 0.5 0.6	0.45 0.57 0.65
	22				
	23				
	24				
	25				
	26				
	27				
	28				

 Recommended cutting data





Drills Codify

Product Line	
MPD	standard drill

Measure	
D	metric
I	imperial

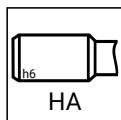
MPD - D 14 C - D 06.00

Cutting Ø		
mm	DD6.000	06 mm
	DD7.000	07 mm
	DD8.000	08 mm
	D	... mm
inch	100.235	0.236
	100.275	0.275
	100.315	0.315
	I...	...

- High cutting speed
- High feed
- Excellent tool life



internal coolant



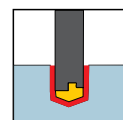
cylindrical shank



5 x diameter



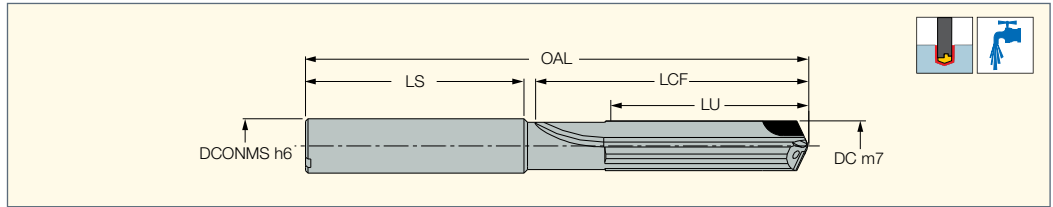
ISO materials



angle

MPD

Solid Carbide Drills with
Brazen PCD Tips, Internal
Coolant Channels



Designation	DC	DCONMS	OAL	LU	LS	LCF
MPD 050-025-06C-5D	5.00	6.00	82.00	35.00	36.0	42.0
MPD 060-030-06C-5D	6.00	6.00	82.00	35.00	36.0	44.0
MPD 068-034-08C-5D	6.80	8.00	91.00	43.00	36.0	53.0
MPD 070-035-08C-5D	7.00	8.00	91.00	43.00	36.0	53.0
MPD 080-040-08C-5D	8.00	8.00	91.00	43.00	36.0	53.0
MPD 085-043-010C-5D	8.50	10.00	103.00	49.00	40.0	60.0
MPD 090-045-010C-5D	9.00	10.00	103.00	49.00	40.0	61.0
MPD 100-050-010C-5D	10.00	10.00	103.00	49.00	40.0	61.0
MPD 102-051-012C-5D	10.20	12.00	118.00	56.00	45.0	71.0
MPD 110-055-012C-5D	11.00	12.00	118.00	56.00	45.0	71.0
MPD 120-060-012C-5D	12.00	12.00	118.00	56.00	45.0	71.0
MPD 130-065-014C-5D	14.00	14.00	124.00	60.00	45.0	77.0
MPD 140-070-014C-5D	14.00	14.00	124.00	60.00	45.0	77.0

Semi STD Drills

Product Line	
XDG	semi standard drill

Measure	
D	metric
I	imperial



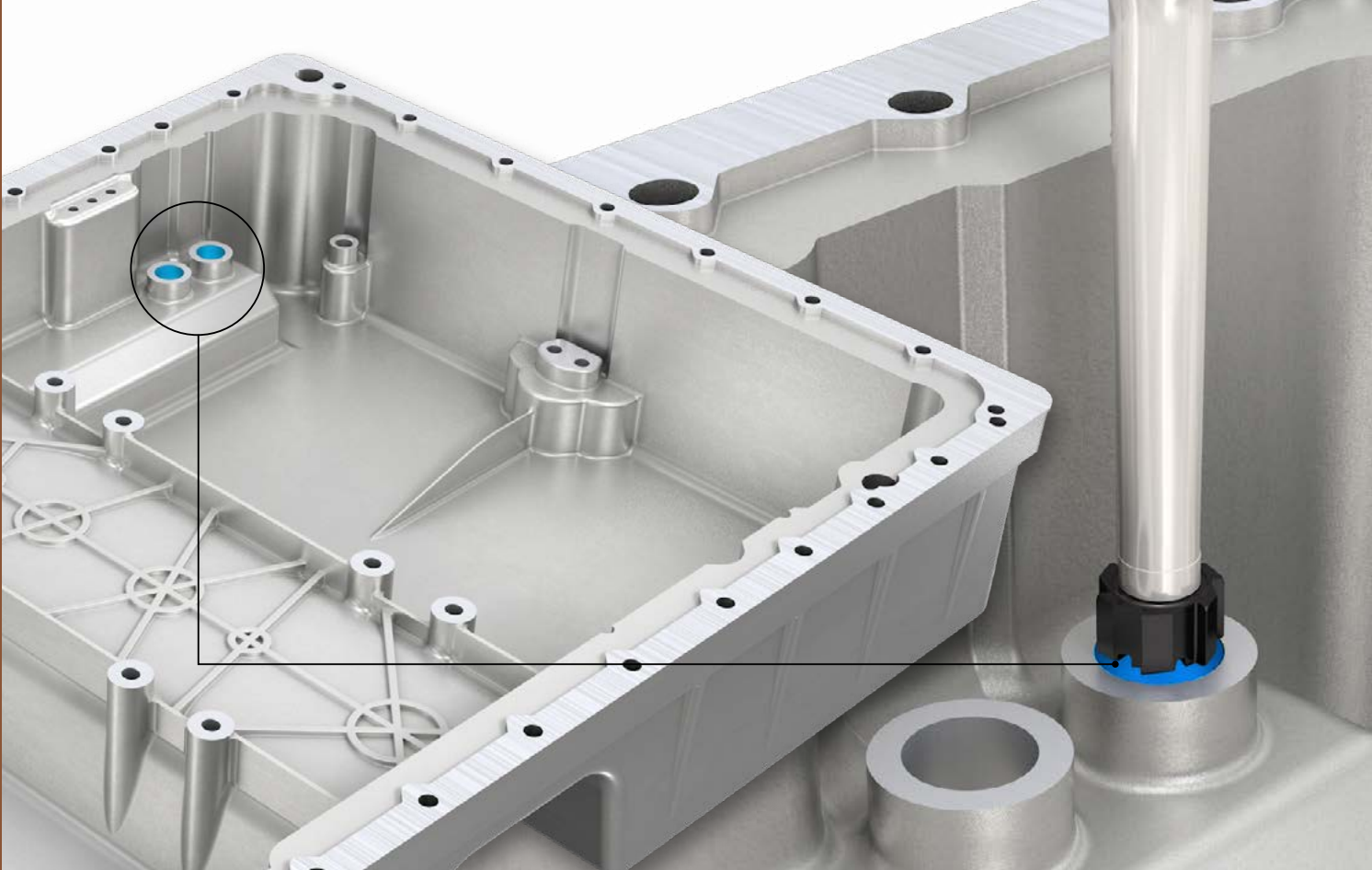
Cutting Ø	
D	XX.XXX mm
I	0..XXXX inch

Cutting Diameter Code

M E T R I C		
Cutting from	Range Ø to	Shank
6.00		8.00h6
		10.00h6
		12.00h6
		14.00h6
		16.00h6
		18.00h6
		20.00h6
		22.00h6

I N C H		
Cutting from	Range Ø to	Shank
0.2362		8.00 mm
		10.00 mm
		12.00 mm
		14.00 mm
		16.00 mm
		18.00 mm
		20.00 mm
		22.00 mm





Reaming Operations

For machining aluminum, a special DLC coating for higher cutting conditions and longer tool life can be applied. Special reaming heads with PCD tips can be made on request.

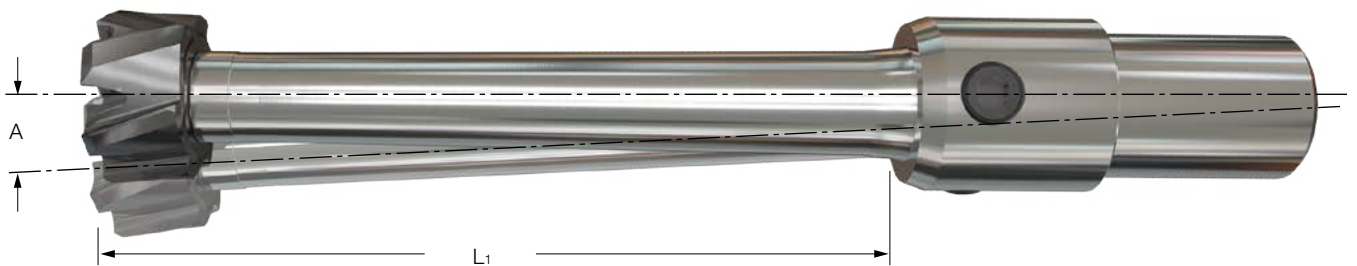
RM-BN-RC-RING adjustment rings for BAYO T-REAM holders solve tool runout caused by the machine spindle, holder weight (in horizontal applications) or long overhang.



RM-BN - Std. range
 $\varnothing 11.5-32$ (.5000-1.2500)



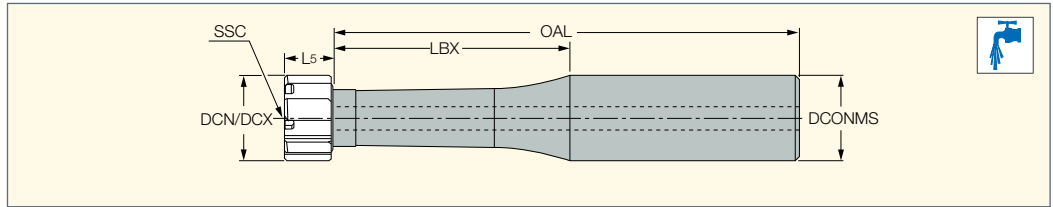
Spc. PCD Brazed





Runout Compensation Rings for BAYO T-REAM Reamers

BAYOT-REAM

RM-BNT (Shanks)
Shanks for BAYO T-REAM
Interchangeable Head Reamers



Designation	ULDR ⁽¹⁾	DCN ⁽²⁾	DCX ⁽³⁾	LBX	OAL	L5	DCONMS	SSC ⁽⁴⁾		
RM-BNT5-1.5D-16C	1.5	11.501	13.500	20.3	68.25	9.50	16.00	BN5	RM-BN5-SR	RM-BN5-K
RM-BNT6-1.5D-16C	1.5	13.501	16.000	24.0	72.00	9.50	16.00	BN6	RM-BN6-SR	RM-BN6-K
RM-BNT7-1.5D-20C	1.5	16.001	20.000	30.0	80.00	10.70	20.00	BN7	RM-BN7-SR	RM-BN7-K
RM-BNT8-1.5D-20C	1.5	20.001	25.400	38.1	88.10	12.90	20.00	BN8	RM-BN8-SR	RM-BN8-K
RM-BNT9-1.5D-25C	1.5	25.401	32.000	48.0	104.00	12.90	25.00	BN9	RM-BN9-SR	RM-BN9-K
RM-BNT9-1.5D-32C	1.5	25.401	32.000	48.0	108.00	12.90	32.00	BN9	RM-BN9-SR	RM-BN9-K
RM-BNT5-3D-16C	3.0	11.501	13.500	40.5	88.50	9.50	16.00	BN5	RM-BN5-SR	RM-BN5-K
RM-BNT6-3D-16C	3.0	13.501	16.000	48.0	96.00	9.50	16.00	BN6	RM-BN6-SR	RM-BN6-K
RM-BNT7-3D-20C	3.0	16.001	20.000	60.0	110.00	10.70	20.00	BN7	RM-BN7-SR	RM-BN7-K
RM-BNT8-3D-20C	3.0	20.001	25.400	75.0	125.00	12.90	20.00	BN8	RM-BN8-SR	RM-BN8-K
RM-BNT9-3D-25C	3.0	25.401	32.000	94.2	150.20	12.90	25.00	BN9	RM-BN9-SR	RM-BN9-K
RM-BNT9-3D-32C	3.0	25.401	32.000	94.2	154.20	12.90	32.00	BN9	RM-BN9-SR	RM-BN9-K
RM-BNT5-5D-16C	5.0	11.501	13.500	67.7	115.70	9.50	16.00	BN5	RM-BN5-SR	RM-BN5-K
RM-BNT6-5D-16C	5.0	13.501	16.000	80.0	128.00	9.50	16.00	BN6	RM-BN6-SR	RM-BN6-K
RM-BNT7-5D-20C	5.0	16.001	20.000	100.0	150.00	10.70	20.00	BN7	RM-BN7-SR	RM-BN7-K
RM-BNT8-5D-20C	5.0	20.001	25.400	125.0	175.00	12.90	20.00	BN8	RM-BN8-SR	RM-BN8-K
RM-BNT9-5D-32C	5.0	25.401	32.000	158.2	218.20	12.90	32.00	BN9	RM-BN9-SR	RM-BN9-K
RM-BNT5-8D-16C	8.0	11.501	13.500	108.2	156.20	9.50	16.00	BN5	RM-BN5-SR	RM-BN5-K
RM-BNT6-8D-16C	8.0	13.501	16.000	128.0	176.00	9.50	16.00	BN6	RM-BN6-SR	RM-BN6-K
RM-BNT7-8D-20C	8.0	16.001	20.000	160.0	210.00	10.70	20.00	BN7	RM-BN7-SR	RM-BN7-K
RM-BNT8-8D-20C	8.0	20.001	25.400	200.0	250.00	12.90	20.00	BN8	RM-BN8-SR	RM-BN8-K
RM-BNT9-8D-32C	8.0	25.401	32.000	254.2	314.20	12.90	32.00	BN9	RM-BN9-SR	RM-BN9-K

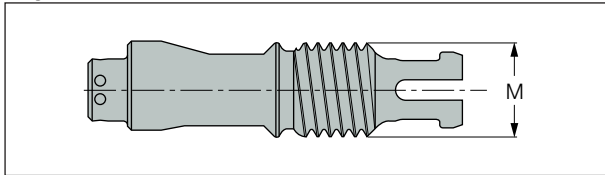
- (1) Usable length diameter ratio
- (2) Reamer min. diameter
- (3) Reamer max. diameter
- (4) Connection size

Holder Designation Code Key



- (1) C- cylindrical, W-Weldon, M-Morse
- (2) No letter - Steel (default), C-Carbide, W- Heavy metal

Bayonet Screw



Designation	Head Diameter	Bayonet Size	M
RM-BN5-SR	11.501-13.500	BN5	M5
RM-BN6-SR	13.501-16.000	BN6	M6
RM-BN7-SR	16.001-20.000	BN7	M7
RM-BN8-SR	20.001-25.400	BN8	M8
RM-BN9-SR	25.401-32.000	BN9	M9

Clamping Key

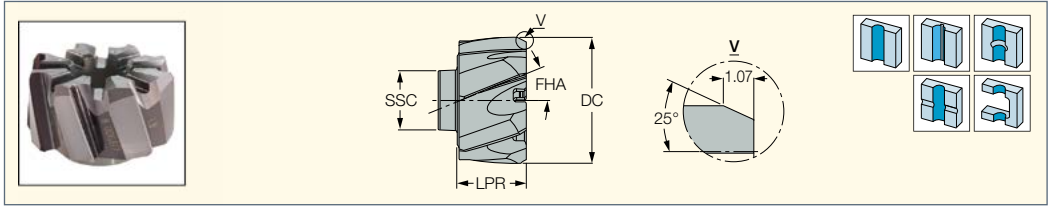


Designation	Head Diameter	Bayonet Size
RM-BN5-K	11.501-13.500	BN5
RM-BN6-K	13.501-16.000	BN6
RM-BN7-K	16.001-20.000	BN7
RM-BN8-K	20.001-25.400	BN8
RM-BN9-K	25.401-32.000	BN9

BAYOT-REAM

RM-BN-H7LB

Quick Change Left-Hand Flute Interchangeable Solid Carbide Reaming Heads for High Speed Reaming Through Holes



Designation	Dimensions						IC08
	SSC ⁽¹⁾	DC	LPR	NOF ⁽²⁾	FHA		
RM-BN5-11.501-H7LB	BN5	11.501	9.50	6	20.0	●	
RM-BN5-12.000-H7LB	BN5	12.000	9.50	6	20.0	●	
RM-BN5-13.000-H7LB	BN5	13.000	9.50	6	20.0	●	
RM-BN5-13.500-H7LB	BN5	13.500	9.50	6	20.0	●	
RM-BN6-13.501-H7LB	BN6	13.501	9.50	6	20.0	●	
RM-BN6-14.000-H7LB	BN6	14.000	9.50	6	20.0	●	
RM-BN6-15.000-H7LB	BN6	15.000	9.50	6	20.0	●	
RM-BN6-16.000-H7LB	BN6	16.000	9.50	6	20.0	●	
RM-BN7-16.001-H7LB	BN7	16.001	10.70	6	20.0	●	
RM-BN7-17.000-H7LB	BN7	17.000	10.70	6	20.0	●	
RM-BN7-18.000-H7LB	BN7	18.000	10.70	6	20.0	●	
RM-BN7-19.000-H7LB	BN7	19.000	10.70	6	20.0	●	
RM-BN7-20.000-H7LB	BN7	20.000	10.70	6	20.0	●	
RM-BN8-20.001-H7LB	BN8	20.001	12.90	8	20.0	●	
RM-BN8-21.000-H7LB	BN8	21.000	12.90	8	20.0	●	
RM-BN8-22.000-H7LB	BN8	22.000	12.90	8	20.0	●	
RM-BN8-23.000-H7LB	BN8	23.000	12.90	8	20.0	●	
RM-BN8-24.000-H7LB	BN8	24.000	12.90	8	20.0	●	
RM-BN8-25.000-H7LB	BN8	25.000	12.90	8	20.0	●	

⁽¹⁾ Seat size code

⁽²⁾ Number of flutes

Complementary Grades (on request):

IC30N cermet tipped, recommended for reaming the following materials: non-alloyed (mild) steel, low alloyed steel (<5% of alloying elements), free cutting steel, tempered steel (tensile strength <1100 N/mm²) and nodular iron (GGG40, GGG60, etc.)

ID5 (PCD) recommended for high speed reaming of aluminum (special cases).

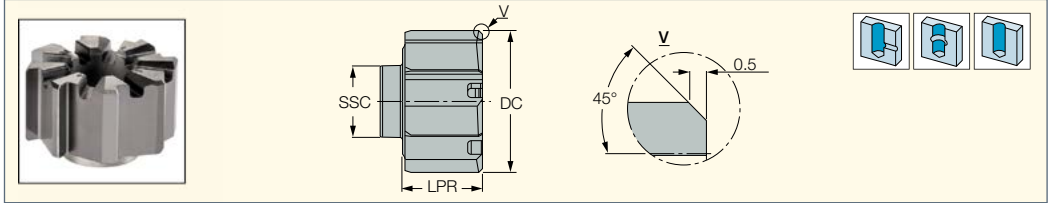
RN01 (DLC coating) recommended for reaming the following materials: aluminum alloys (cast, wrought, etc.), brass, bronze and other nonferrous materials.



BAYOT-REAM

RM-BN-H7SA

Quick Change Straight Flute Interchangeable Solid Carbide Reaming Heads for High Speed Reaming Blind Holes



Designation	Dimensions				IC08
	SSC ⁽¹⁾	DC	LPR	NOF ⁽²⁾	
RM-BN5-11.501-H7SA	BN5	11.501	9.50	6	●
RM-BN5-12.000-H7SA	BN5	12.000	9.50	6	●
RM-BN5-13.000-H7SA	BN5	13.000	9.50	6	●
RM-BN5-13.500-H7SA	BN5	13.500	9.50	6	●
RM-BN6-13.501-H7SA	BN6	13.501	9.50	6	●
RM-BN6-14.000-H7SA	BN6	14.000	9.50	6	●
RM-BN6-15.000-H7SA	BN6	15.000	9.50	6	●
RM-BN6-16.000-H7SA	BN6	16.000	9.50	6	●
RM-BN7-16.001-H7SA	BN7	16.001	10.70	6	●
RM-BN7-17.000-H7SA	BN7	17.000	10.70	6	●
RM-BN7-18.000-H7SA	BN7	18.000	10.70	6	●
RM-BN7-19.000-H7SA	BN7	19.000	10.70	6	●
RM-BN7-20.000-H7SA	BN7	20.000	10.70	6	●
RM-BN8-20.001-H7SA	BN8	20.001	12.90	8	●
RM-BN8-21.000-H7SA	BN8	21.000	12.90	8	●
RM-BN8-22.000-H7SA	BN8	22.000	12.90	8	●
RM-BN8-24.000-H7SA	BN8	24.000	12.90	8	●
RM-BN8-25.000-H7SA	BN8	25.000	12.90	8	●
RM-BN9-26.000-H7SA	BN9	26.000	12.90	8	●

⁽¹⁾ Seat size code

⁽²⁾ Number of flutes

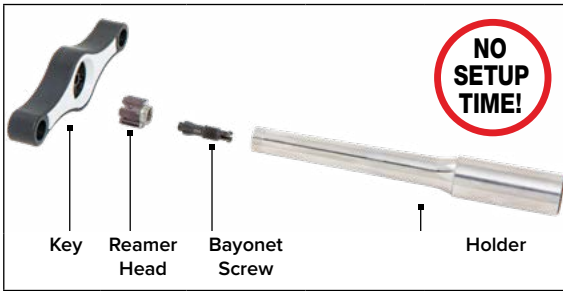
Complementary Grades (on request):

IC30N cermet tipped, recommended for reaming the following materials: non-alloyed (mild) steel, low alloyed steel (<5% of alloying elements), free cutting steel, tempered steel (tensile strength <1100 N/mm²) and nodular iron (GGG40, GGG60, etc.)

ID5 (PCD) recommended for high speed reaming aluminum (special cases).

RN01 (DLC coating) recommended for reaming the following materials: aluminum alloys (cast, wrought, etc.), brass, bronze and other nonferrous materials.

Each size has its own diameter range and holder.
 For example:
 The same RM-BN7 holder can hold any
 head between $\varnothing 16.001$ – 20.000 mm



RM-BN9



$\varnothing 25.401$ - 32.000 mm

RM-BN8



$\varnothing 20.001$ - 25.400 mm

RM-BN7



$\varnothing 16.001$ - 20.000 mm

RM-BN6

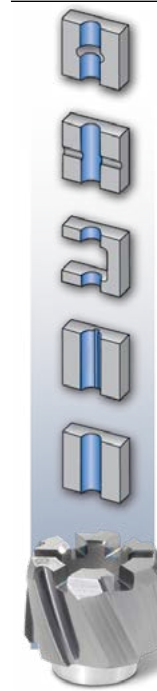
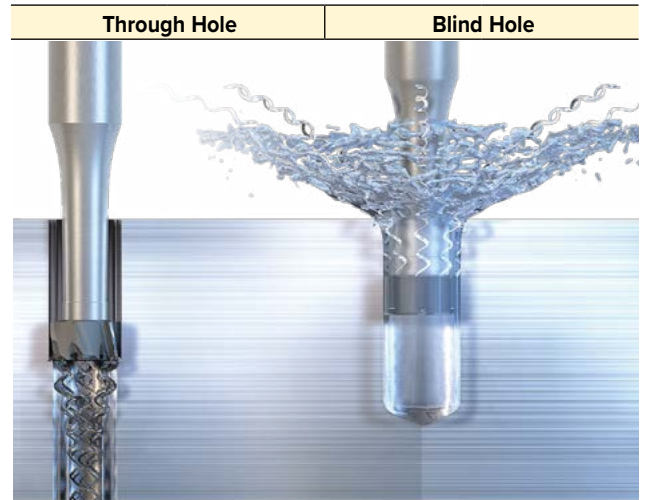


$\varnothing 13.501$ - 16.000 mm

RM-BN5

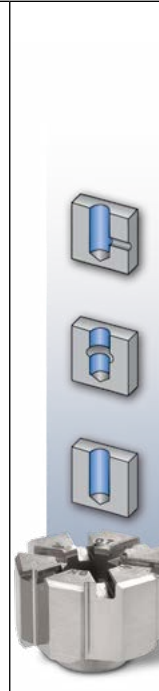


$\varnothing 11.500$ - 13.500 mm



Left-Hand Flute

The left-hand spiral is designed especially for through hole reaming. Due to this design, the chips are pushed forward immediately after formation.



Straight Flute

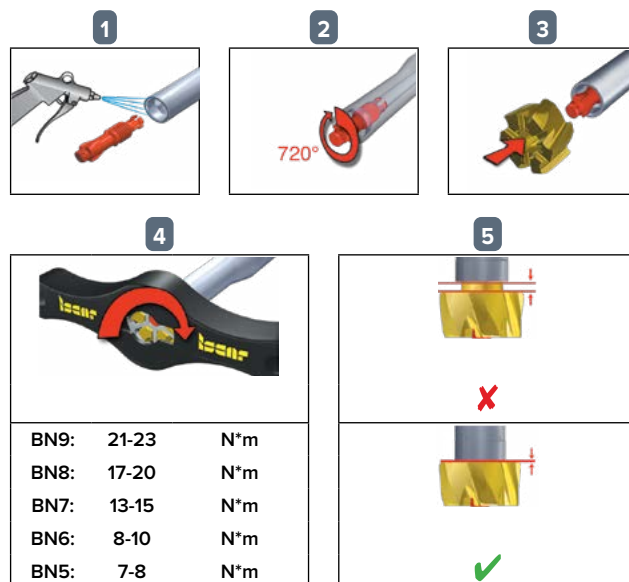
The coolant flow assists the chip evacuation process. It directs the just-formed chips backwards. The chips pass through the straight flutes and evacuated through the hole, without causing any damage to the reamer or hole surface.

First Assembly

- Clean the toolholder pocket (Fig. 1)
- Clean the reamer head clamping cone
- Insert the clamping screw into the holder and rotate it 2-3 turns in a clockwise direction (Fig. 2)
- Clamp the reaming head on the screw; note, BN8 and BN9 can be assembled only in a specific position relative to the screw (rotate the head until locating the correct position) (Fig. 3)
- Manually rotate the reaming head until it sits firmly in the pocket
- Tighten with the special key (Fig. 4)
- Make sure there is no face gap between the toolholder and the reaming head (Fig. 5)

Indexing

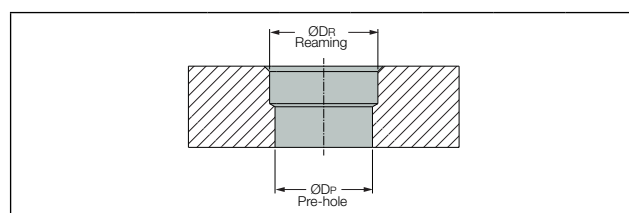
- Release the reaming head with the key, turning in a counterclockwise direction until it rotates freely
- Rotate another one turn by hand
- Remove the reamer head from the tool; the clamping screw should remain inside
- Clean the pocket of the toolholder (Fig. 1)
- Clean the cone on the new reamer head
- Clamp the reaming head on the screw; note, BN8 and BN9 can be assembled only in a specific position relative to the screw (rotate the head until locating the correct position) (Fig. 3)
- Manually rotate the reaming head. In the beginning it should rotate without the screw and then (after 1/6 of a turn) it should engage with the screw. Rotate until it sits firmly in the pocket. If the screw rotates together with the reaming head from the beginning, remove the reaming head and open the screw another one turn.
- Tighten with the special key (Fig. 4)
- Make sure that there is no face gap between the toolholder and the reaming head (Fig. 5)



BN9:	21-23	N*m
BN8:	17-20	N*m
BN7:	13-15	N*m
BN6:	8-10	N*m
BN5:	7-8	N*m

Complementary Grades (On Request)

ID5 (PCD) recommended for high speed reaming of aluminum (special cases). RN01 (DLC coating) recommended for reaming the following materials: aluminum alloys (cast, wrought, etc.), brass, bronze and other nonferrous materials.



Material	Hole Ø mm						mm/Ø
	< 9.5	9.5 - 11.5	11.5 - 13.5	13.5 - 16	16 - 32	>32	
Aluminum and Brass	0.07-0.10	0.10-0.15	0.15-0.25	0.20-0.30	0.20-0.40	0.20-0.50	

Δ - reaming allowance Δ = DR - DP



ISO	Material	Condition	Material No. ⁽¹⁾	Through Hole				Interrupted Through Hole			
				First Choice		Second Choice		First Choice		Second Choice	
Z	Aluminum wrought alloy	Not cureable	21	RN01	LG or SG	ID5	SG	RN01	LG	ID5	SG
		Cured	22	V _c = 150 - 400		V _c = 200 - 500		V _c = 150 - 350		V _c = 200 - 500	
	Aluminum - cast, alloyed	Not cureable	23								
		Cured	24	BN4 - BN6	f _z = 0.08 - 0.16	BN4 - BN6	f _z = 0.08 - 0.2	BN4 - BN6	f _z = 0.08 - 0.16	BN4 - BN6	f _z = 0.08 - 0.2
		High temperature	25	BN7 - BN9	f _z = 0.10 - 0.20	BN7 - BN9	f _z = 0.11 - 0.24	BN7 - BN9	f _z = 0.10 - 0.20	BN7 - BN9	f _z = 0.11 - 0.24
		Copper alloys Brass, bronze	Free cutting	26	IC30N	SA or SG	IC08	SG or SA	IC08	SG or SA	
				V _c = 180 - 240		V _c = 30 - 100		V _c = 30 - 100			
	Brass		27	BN4 - BN6	f _z = 0.05 - 0.16	BN4 - BN6	f _z = 0.04 - 0.13	BN4 - BN6	f _z = 0.04 - 0.13		
		Electrolitic copper	28	BN7 - BN9	f _z = 0.04 - 0.20	BN7 - BN9	f _z = 0.05 - 0.16	BN7 - BN9	f _z = 0.05 - 0.16		
	Non-metallic	Duroplastics, fiber plastics	29	IC908	SA	IC908	LB	IC908	SA	IC908	LB
				V _c = 25 - 80		V _c = 25 - 80		V _c = 25 - 80		V _c = 25 - 80	
		Hard rubber	30	BN4 - BN6	f _z = 0.05 - 0.10	BN4 - BN6	f _z = 0.05 - 0.12	BN4 - BN6	f _z = 0.05 - 0.10	BN4 - BN6	f _z = 0.05 - 0.12
BN7 - BN9	f _z = 0.10 - 0.20			BN7 - BN9	f _z = 0.10 - 0.23	BN7 - BN9	f _z = 0.10 - 0.20	BN7 - BN9	f _z = 0.10 - 0.23		

* Standard edge geometries are not suitable for reaming titanium and high temperature alloys. In order to choose a proper geometry, please ask for our recommendations.
 • The given cutting data recommendations refer to the short holders (3xD effective reaming overhang). For longer holders, the cutting speed should be reduced proportionally.
 • For relatively large leading angles (spot-facing geometries), the feed should be reduced up to 30%.
 • All the given cutting data recommendations refer to the machines with spindle through coolant supply.
 (1) For workpiece materials list, see pages 495-524

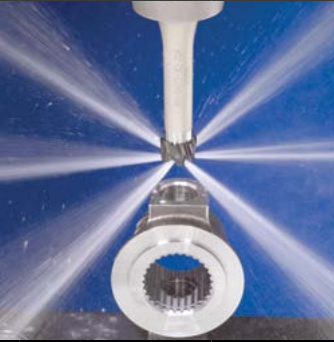










Material No.	Blind Hole				Interrupted Blind Hole				IC08			
	First Choice		Second Choice		First Choice		Second Choice		Through Hole - LB Blind Hole - SA			
21	RN01	SG or SA	ID5	SG or SA	RN01	SG or SA	ID5	SG or SA	V _c = 10 - 30			
22	V _c = 150 - 400		V _c = 200 - 400		V _c = 150 - 300		V _c = 200 - 400					
23												
24	BN ₄ - BN ₆	f _z = 0.08 - 0.16	BN ₄ - BN ₆	f _z = 0.08 - 0.16	BN ₄ - BN ₆	f _z = 0.07 - 0.15	BN ₄ - BN ₆	f _z = 0.08 - 0.16	BN ₄ - BN ₆	f _z = 0.05 - 0.12		
25	BN ₇ - BN ₉	f _z = 0.11 - 0.20	BN ₇ - BN ₉	f _z = 0.11 - 0.24	BN ₇ - BN ₉	f _z = 0.11 - 0.20	BN ₇ - BN ₉	f _z = 0.11 - 0.24	BN ₇ - BN ₉	f _z = 0.08 - 0.15		
26	IC30N	SG or SA	IC08	SG or SA	IC08	SG or SA			V _c = 30 - 100			
	V _c = 180 - 240		V _c = 30 - 100		V _c = 30 - 100							
27	BN ₄ - BN ₆	f _z = 0.05 - 0.16	BN ₄ - BN ₆	f _z = 0.04 - 0.13	BN ₄ - BN ₆	f _z = 0.04 - 0.13			BN ₄ - BN ₆	f _z = 0.04 - 0.13	BN ₄ - BN ₆	f _z = 0.04 - 0.13
28	BN ₇ - BN ₉	f _z = 0.05 - 0.21	BN ₇ - BN ₉	f _z = 0.05 - 0.16	BN ₇ - BN ₉	f _z = 0.05 - 0.16			BN ₇ - BN ₉	f _z = 0.05 - 0.16	BN ₇ - BN ₉	f _z = 0.05 - 0.16
29	IC908	SA			IC908	SA			V _c = 10 - 20			
	V _c = 25 - 80				V _c = 25 - 80							
30	BN ₄ - BN ₆	f _z = 0.05 - 0.10			BN ₄ - BN ₆	f _z = 0.05 - 0.10			BN ₇ - BN ₉	f _z = 0.10 - 0.20	BN ₄ - BN ₆	f _z = 0.05 - 0.12
	BN ₇ - BN ₉	f _z = 0.10 - 0.20	BN ₇ - BN ₉	f _z = 0.10 - 0.20	BN ₇ - BN ₉	f _z = 0.10 - 0.20	BN ₇ - BN ₉	f _z = 0.10 - 0.20	BN ₇ - BN ₉	f _z = 0.08 - 0.16		

Legend:

Grade	→	LB	IC08	←	Cutting geometry
Cutting speed [m/min]	→	V_c = 10 - 20 ISO - 400		←	
BAYO T-REAM head size	→	f_z = 0.04 - 0.15	BN4-BN6	←	Feed [mm/tooth]
		f_z = 0.05 - 0.20	BN7-BN9		

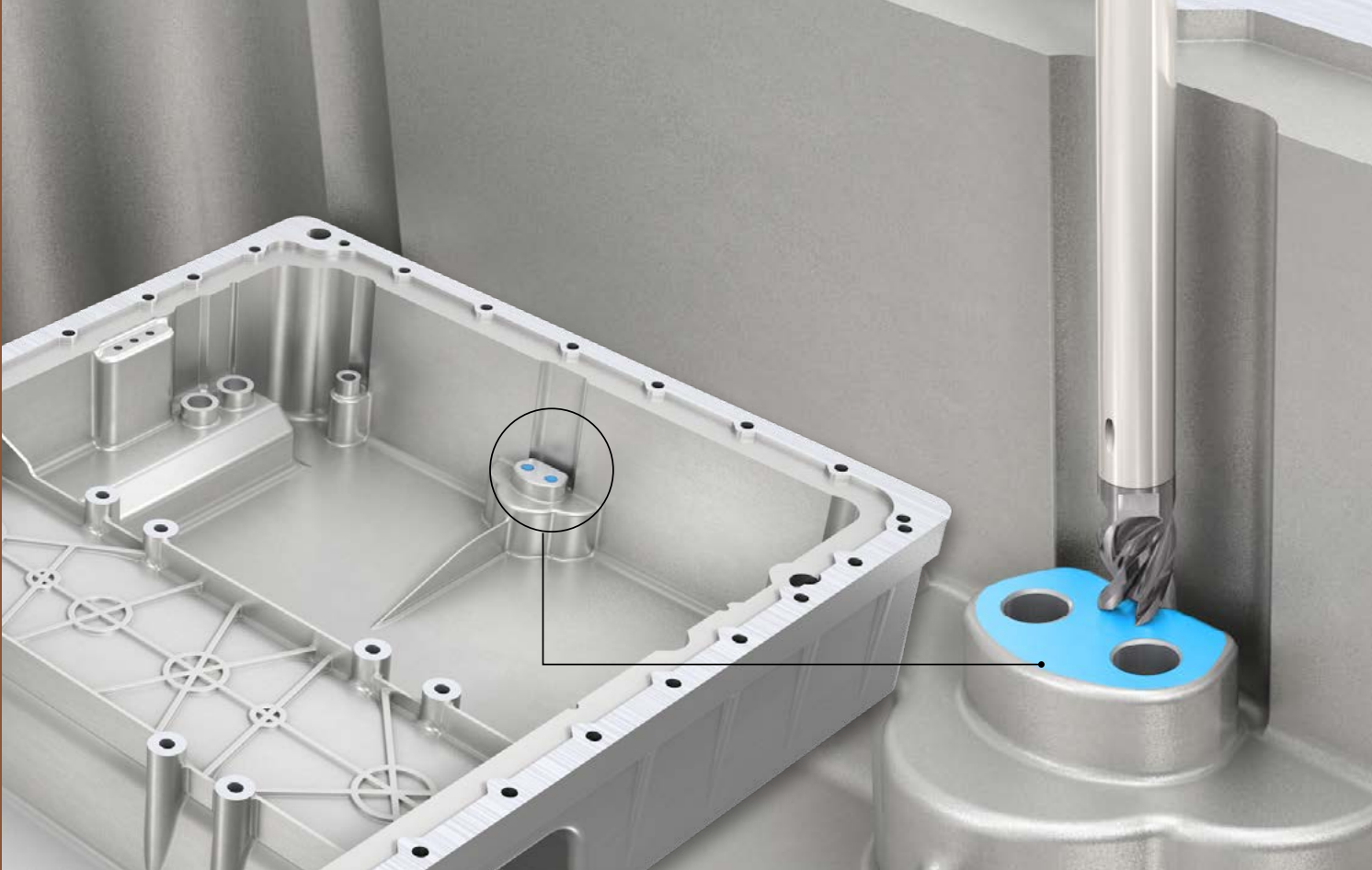


Solutions			Cutting Data/ Allowance			Tool; Toolholder					Workpiece	Machine		Machining Process						
			feed fz	spindle speed min ⁻¹	diameter allowance	geometry angle	runout maximum 5µm	wear check / change insert	optimize tool length and diameter	floating chuck GFIS	ADJ chuck finetfit/RC RING	workpiece fixture / pressure	coolant mixture	coolant pressure	angle error / centric error / axis deviation	spindle speed on entry	entry geometry / chamfer / oblique surface at entry	feed in and out same	chip evacuation	
Hole too large		Vibration	●			●					●	●	●		●	●				
		Runout error					●		●	●										
		Built up edge	●	●	●			●								●				
		Diameter allowance			●															●
Hole too small		Tool wear					●				●	●	●	●		●				
		Compression of material				●		●								●		●		
		Compression of clamping			●	●														
		Diameter allowance			●															
Tapered hole		Deformation by clamping			●						●	●								
		Unequal wall thickness			●	●														
Machine		Machine				●		●	●	●			●							
		Chip flow										●	●						●	
Hole shows chatter marks		Vibration	●	●	●	●		●			●	●	●		●	●				
		Runout error					●		●	●				●						
Insufficient surface		Vibration	●	●		●		●			●	●			●	●				
		Built up edge	●	●				●				●	●							
		Runout error					●		●	●										
		Cutting geometry						●	●											●
		Machine									●	●		●						

Solutions	Cutting Data/ Allowance			Tool; Toolholder						Workpiece	Machine			Machining Process			
	feed fz	spindle speed min ⁻¹	diameter allowance	geometry angle	runout maximum 5µm	wear check / change insert	optimize tool length and diameter	floating chuck GFIS	ADJ chuck finefit/RC RING	workpiece fixture / pressure	coolant mixture	coolant pressure	angle error / centric error / axis deviation	spindle speed on entry	entry geometry / chamfer / oblique surface at entry	feed in and out same	chip evacuation
Retraction marks 	Built up edge	●	●		●	●	●	●	●		●		●	●			
	Compression of material			●	●	●	●	●	●	●					●	●	
	Compression of clamping																
	Tool wear			●		●											
Problem Slight defect in shape / noncircular hole 	Chip flow			●							●	●					●
	Machine				●	●	●	●	●				●		●	●	●
	Compression of clamping			●						●							
	Compression of clamping			●						●							

- check / optimize
- increase / improve
- reduce / decrease
- apply / use

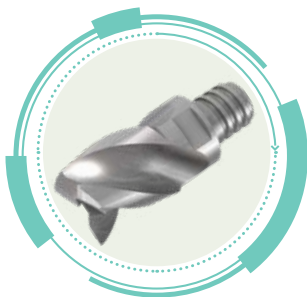




End Milling Operations

MULTI-MASTER interchangeable solid carbide heads are dedicated for machining aluminum and may be used for both roughing and finishing.

The design features 4 super polished flutes for optimal chip evacuation and excellent chatter damping abilities, easy tool change capabilities and no setup time.



MM EA-CF Std.
range Ø8-20 (.312-.984")



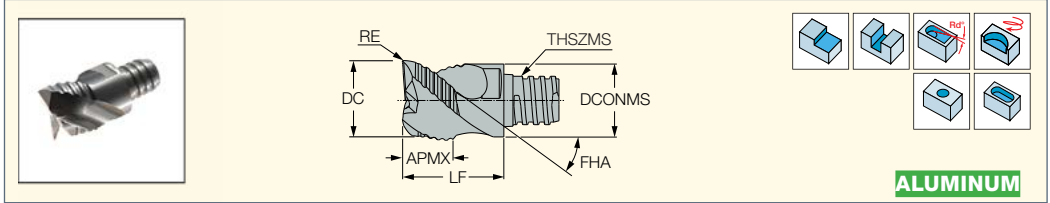
MM ERA Std.
range Ø8-25 (.312-.750")



MM EA Std. range
Ø8-25 (.315-1.000")

MM ERA

Interchangeable Solid Carbide
Rough Milling Heads for
Machining Aluminum at High
Metal Removal Rates



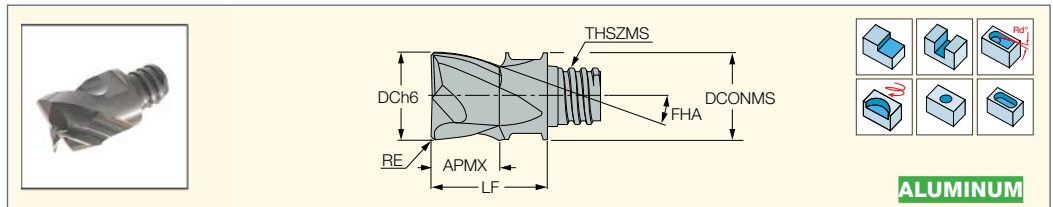
Designation	Dimensions								IC08	Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		f _z (mm/t)
MM ERA080B05R0.2-3T05	8.00	3	5.00	0.20	T05	7.70	10.00	45.0	●	0.03-0.15
MM ERA100B06R0.2-3T06	10.00	3	6.00	0.20	T06	9.60	13.00	45.0	●	0.05-0.20
MM ERA120B08R0.2-3T08	12.00	3	8.00	0.20	T08	11.70	16.50	45.0	●	0.07-0.22
MM ERA160B10R0.2-3T10	16.00	3	10.00	0.20	T10	15.30	20.50	45.0	●	0.07-0.25
MM ERA200B12R0.2-3T12	20.00	3	12.00	0.20	T12	18.45	25.50	45.0	●	0.07-0.25
MM ERA250B19R0.2-3T15	25.00	3	19.00	0.20	T15	23.90	37.00	45.0	●	0.07-0.25

• Do not apply lubricant to the threaded connection.

⁽¹⁾ Number of flutes

MM EA

Interchangeable Solid Carbide
Slot Drill Milling Heads for
Machining Aluminum



Designation	Dimensions								IC08	Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		f _z (mm/t)
MM EA060B03R0.0-3T04	6.00	3	3.20	0.00	T04	5.80	8.50	45.0	●	0.02-0.05
MM EA080B05R0.5-2T05	8.00	2	5.00	0.50	T05	7.70	10.00	45.0	●	0.03-0.09
MM EA080B05R0.5-3T05	8.00	3	5.00	0.50	T05	7.70	10.00	45.0	●	0.03-0.09
MM EA100B07R0.5-2T06	10.00	2	7.00	0.50	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B07R1.0-2T06	10.00	2	7.00	1.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B06R0.5-3T06	10.00	3	6.00	0.50	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA100B06R1.0-3T06	10.00	3	6.00	1.00	T06	9.60	13.00	45.0	●	0.03-0.10
MM EA120B09R0.5-2T08	12.00	2	9.00	0.50	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B09R1.0-2T08	12.00	2	9.00	1.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R0.5-3T08	12.00	3	8.00	0.50	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R1.0-3T08	12.00	3	8.00	1.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA120B08R3.0-3T08	12.00	3	8.00	3.00	T08	11.70	16.50	45.0	●	0.04-0.11
MM EA160B10R000-3T10	16.00	3	10.00	0.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R1.0-3T10	16.00	3	10.00	1.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R2.0-3T10	16.00	3	10.00	2.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R3.0-3T10	16.00	3	10.00	3.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA160B10R4.0-3T10	16.00	3	10.00	4.00	T10	15.30	20.50	45.0	●	0.05-0.13
MM EA200B12R0.5-3T12	20.00	3	12.00	0.50	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R1.0-3T12	20.00	3	12.00	1.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R2.0-3T12	20.00	3	12.00	2.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R3.0-3T12	20.00	3	12.00	3.00	T12	18.45	25.50	45.0	●	0.05-0.13
MM EA200B12R4.0-3T12	20.00	3	12.00	4.00	T12	18.45	25.50	45.0	●	0.05-0.13

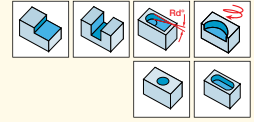
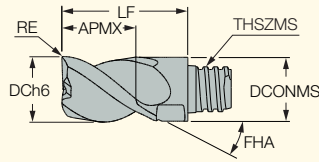
• Do not apply lubricant to the threaded connection.

⁽¹⁾ Number of flutes

CHATTERFREE
MULTI-MASTER LINE

MM EA-CF

Interchangeable Solid Carbide Endmill Heads with Different Helix for Machining Aluminum



ALUMINUM

Designation	Dimensions								IC08	Recommended Machining Data
	DC	NOF ⁽¹⁾	APMX	RE	THSZMS	DCONMS	LF	FHA		f _z (mm/t)
MM EA080H08R0CF-4T05	8.00	4	8.00	0.00	T05	7.70	15.00	40.0	●	0.03-0.09
MM EA100H10R0CF-4T06	10.00	4	10.00	0.00	T06	9.60	19.00	40.0	●	0.03-0.10
MM EA120H12R0.2CF-3T08	12.00	3	12.00	0.20	T08	11.70	23.00	40.0	●	0.04-0.11
MM EA120H12R0CF-4T08	12.00	4	12.00	0.00	T08	11.70	23.00	40.0	●	0.04-0.11
MM EA160H16R0.0CF-3T10	16.00	3	16.00	0.00	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R0.2CF-3T10	16.00	3	16.00	0.20	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R0.5CF-3T10	16.00	3	16.00	0.50	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R2.5CF-3T10	16.00	3	16.00	2.50	T10	15.30	28.00	40.0	●	0.05-0.13
MM EA160H16R3CF-3T10	16.00	3	16.00	3.00	T10	15.30	26.00	40.0	●	0.05-0.13
MM EA160H16R4CF-3T10	16.00	3	16.00	4.00	T10	15.30	26.00	40.0	●	0.05-0.13
MM EA160H16R0CF-4T10	16.00	4	16.00	0.00	T10	15.30	26.00	40.0	●	0.05-0.13
MM EA200H20R0.0CF-3T12	20.00	3	20.00	0.00	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R0.2CF-3T12	20.00	3	20.00	0.20	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R0.5CF-3T12	20.00	3	20.00	0.50	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R2.5CF-3T12	20.00	3	20.00	2.50	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R3CF-3T12	20.00	3	20.00	3.00	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA200H20R4CF-3T12	20.00	3	20.00	4.00	T12	18.45	34.00	40.0	●	0.05-0.13
MM EA250H19R0.5-3T15	25.00	3	19.00	0.50	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA250H19R1.0-3T15	25.00	3	19.00	1.00	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA250H19R3.0-3T15	25.00	3	19.00	3.00	T15	23.90	37.00	40.0	●	0.06-0.16
MM EA250H19R4.0-3T15	25.00	3	25.00	4.00	T15	23.90	37.00	40.0	●	0.06-0.16

- Do not apply lubricant to the threaded connection.
- ⁽¹⁾ Number of flutes





ROTOR



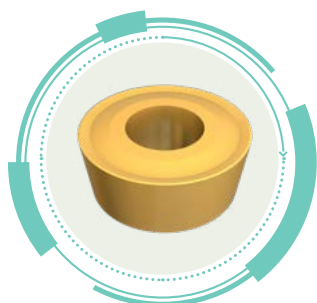


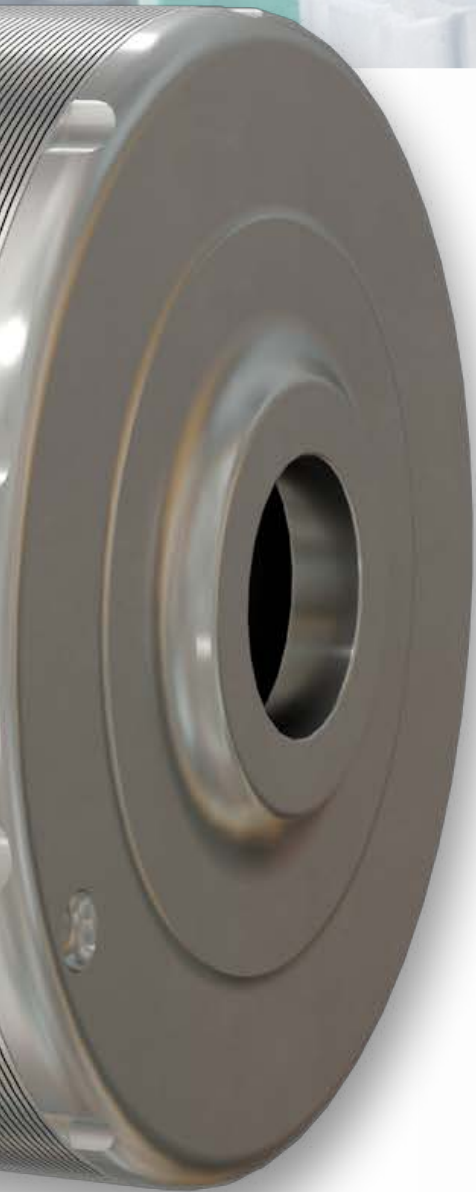
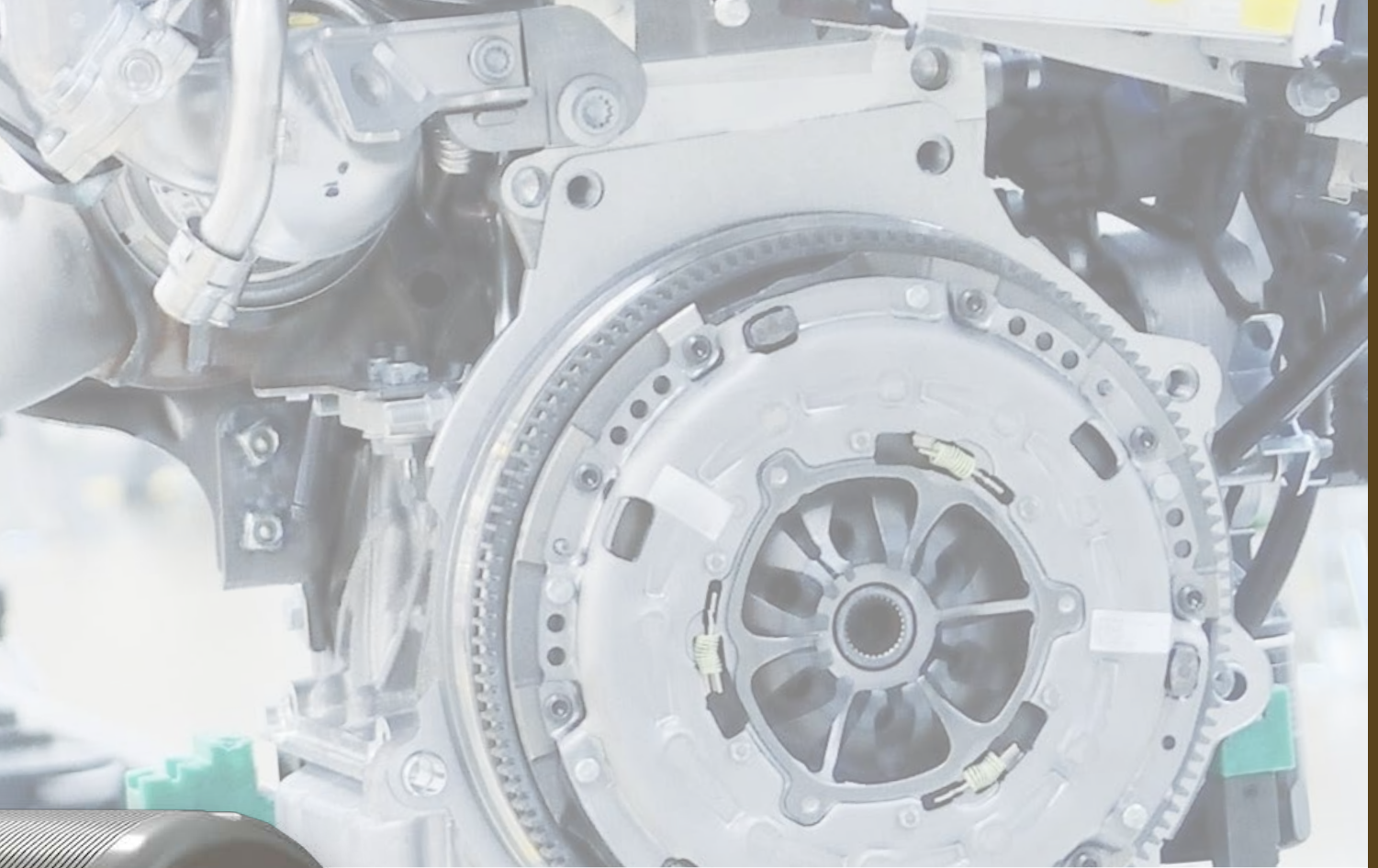
Turning Operations

The rotor consists of many stacked plates of electric steel. Lamination sheets are used instead of a solid body to reduce current loss. The surface must be completely clean of chips, oil, water, dust or dirt, and coolant fluid cannot be used, only air. This is a challenge as a lot of heat is generated on the cutting area and the fragmented chips stick to the surface. Surface finish requirements for this interrupted turning operation remain strict.

CHAMTURN

ISCAR has overcome these challenges by developing a combined tool with coolant holes both on top and bottom of the cutting edge to cool and blow away the chips. The two round inserts are positioned for semi-finish and finish operations, generating an Ra 1.9. surface quality.





dry coolant holes directed at the cutting area

finish insert

dry coolant holes to blow away the chips

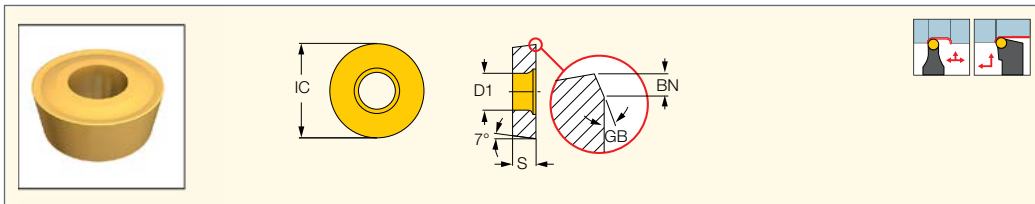
semi-finish insert



ISOTURN

RCMT-14

Round Inserts with a 7° Positive Flank for Medium and Finish Profiling on a Wide Range of Materials



Designation	Dimensions						IC20	Recommended Machining Data	
	IC	S	D1	GB	BN	a _p (mm)		f (mm/rev)	
RCMT 0803M0-14	8.00	3.18	3.40	15.0	0.15	●	1.00-4.00	0.30-0.45	
RCMT 10T3M0-14	10.00	3.97	4.40	15.0	0.15	●	1.50-5.00	0.30-0.50	
RCMT 1204M0-14	12.00	4.76	5.50	15.0	0.15	●	1.50-6.00	0.30-0.50	
RCMT 1606M0-14	16.00	6.35	5.50	15.0	0.25	●	2.00-8.00	0.40-0.60	
RCMT 2006M0-14	20.00	6.35	6.50	15.0	0.25	●	2.50-10.00	0.50-0.70	

Used for semi finishing, finishing and semi roughing of aluminum, cast iron and stainless steel. An uncoated carbide grade.

ISO Range - P/M/K	(M10-M25)(K10-K20)
ISO Range - N/S/H	(H05-H15)(S05-S20)(N05-N25)

Grade Or Coating Type	Uncoated
Coating Layers	Uncoated



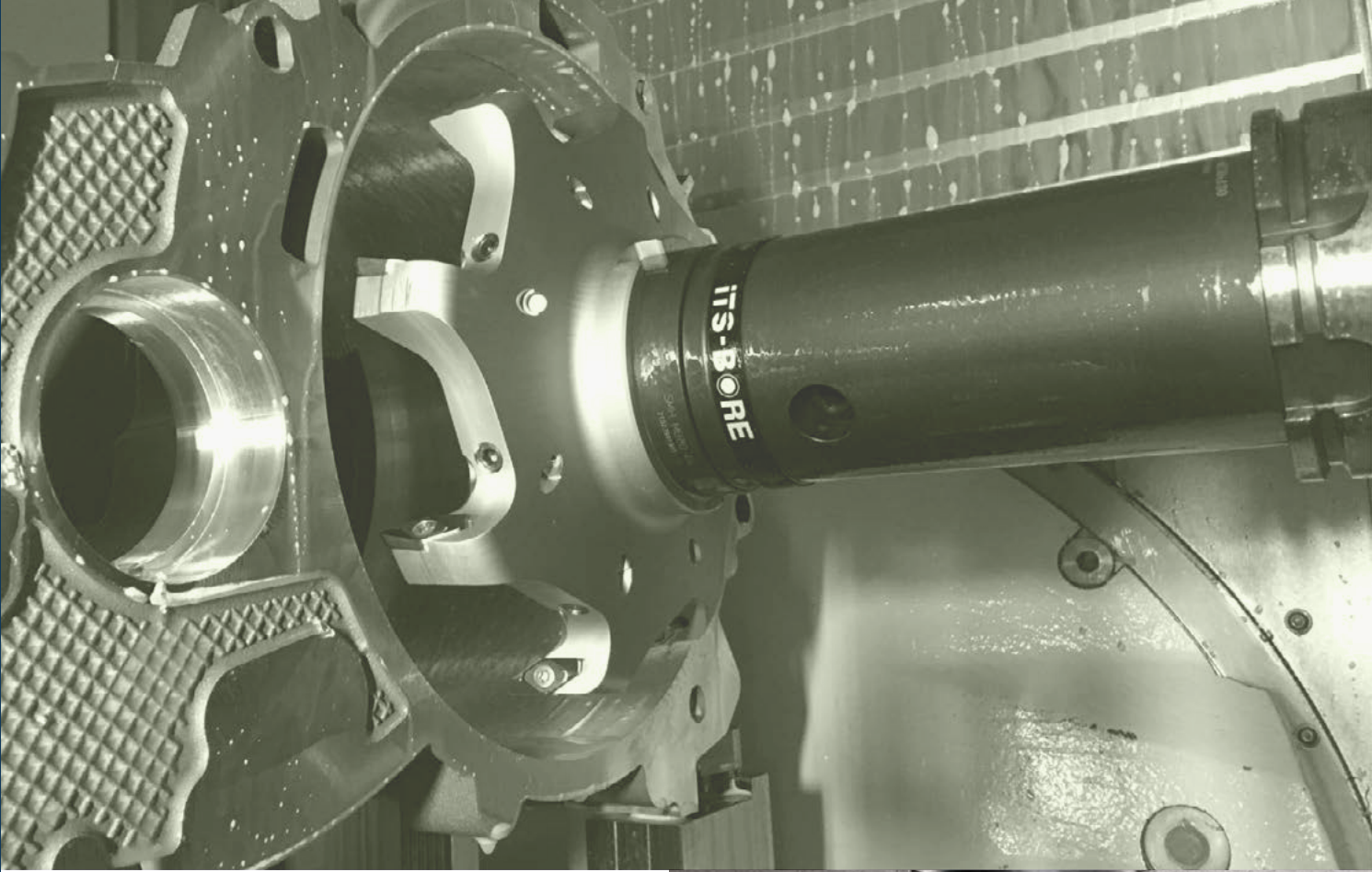
Cutting Speed

ISO	Material	Material Designation	Material Condition	Hardness	Cutting Speed Recommendations (V _c)
N	21	Aluminum-wrought alloys	Not hardenable	60 HB	1000-2500 m/min
	22	Aluminum-wrought alloys	Hardenable	100 HB	300-1000 m/min
	23	Aluminum-cast alloys <=12% Si	Not hardenable	75 HB	300-1000 m/min
	24	Aluminum-cast alloys <=12% Si	Hardenable	90 HB	200-600 m/min
	26	Copper alloys >1% Pb	Free cutting	110 HB	250-600 m/min
	27	Copper alloys	Brass	90 HB	180-400 m/min
	28	Copper alloys	Electrolytic copper	100 HB	150-300 m/min



STATOR HOUSING





Stator Housing

The stator housing in an electric vehicle motor is typically made of lightweight and durable materials such as aluminum. The housing is designed to withstand the high temperatures and mechanical stresses associated with motor operation and can also be designed to improve the motor's efficiency.

Overall, machining the stator housing accurately is critical to ensure the safe and efficient operation of the electric motor in an electric vehicle. The housing provides support and protection for the stator and helps to manage the heat generated during motor operation.

ISCAR is a leading manufacturer of cutting tools that are designed specifically for machining stator housings in electric motors. Iscar's tools are known for their high performance, accuracy, and durability, making them a top choice for many companies in the electric vehicle industry.



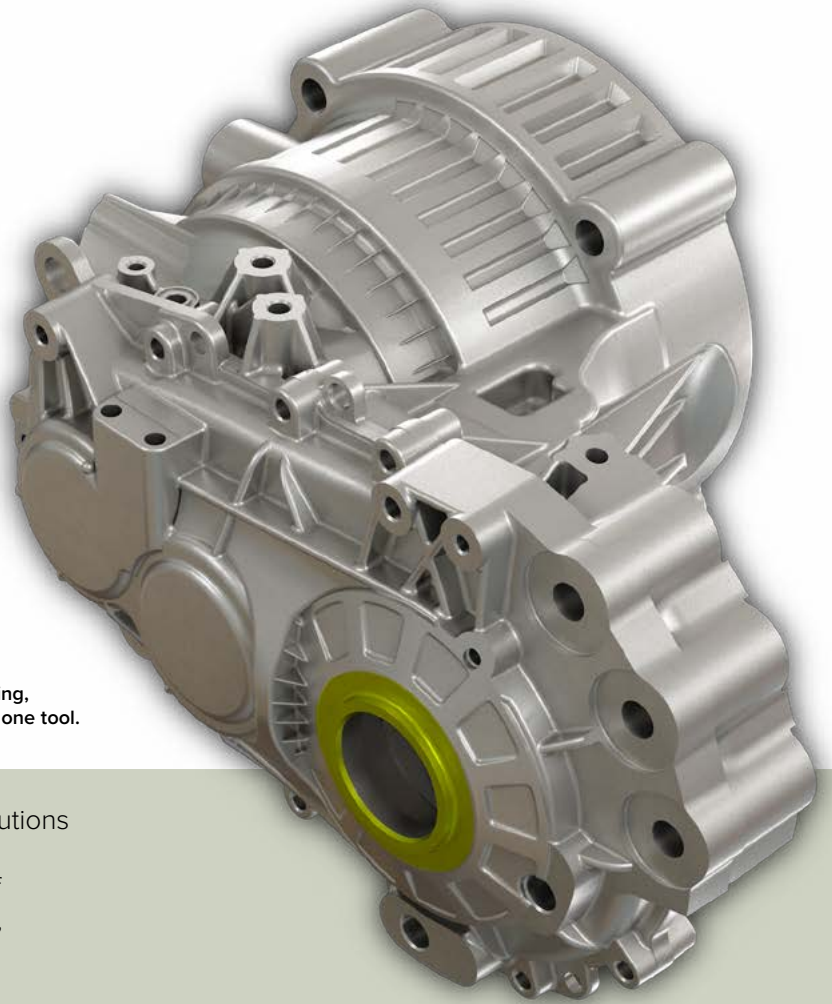


MOTOR HOUSING



Roughing Bearing Seat and Outside Diameter

Multi-function tools are the trademarks of ISCAR's solutions for increasing productivity. These tools make it possible to combine different operations to reduce the cycle time.



Internal and external boring, reaming and grooving in one tool.

The use of PCD and **ISCAR's** tailor made solutions allow us to manufacture more high-performance tools in terms of number of simultaneous operations and longer tools life, offering solutions which increase productivity and assure cost effective solutions.



CENTERING MODULE



BRAZED TOOL



PCD



CENTERING MODULE



BRAZED TOOL



PCD



Internal and external boring and reaming with interchangeable edges for grooving.



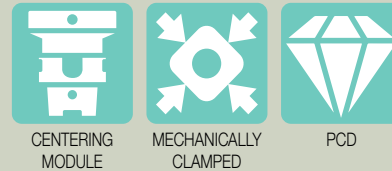
Internal and external boring with grooving by use of interpolation.

Finishing Inside and Outside Diameter

Special PCD tools guarantee the achievement of the typical qualitative and quantitative parameters of the automotive sector. ISCAR is committed to its customers by providing the most technologically advanced solutions in quality and stable machining operations.



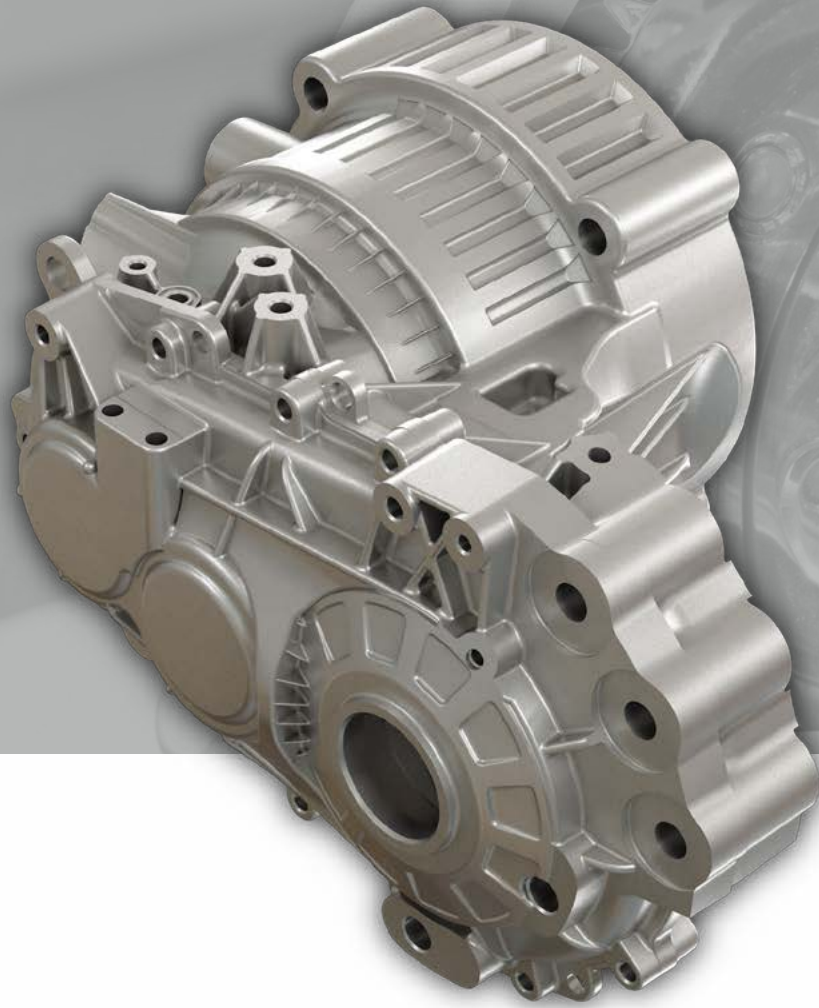
Different solutions are available with blades, brazed or indexable cutting edges to achieve the highest stability and productivity.



Internal and external indexable reamer with guiding pads technology.



External indexable reamer with tangential technology.

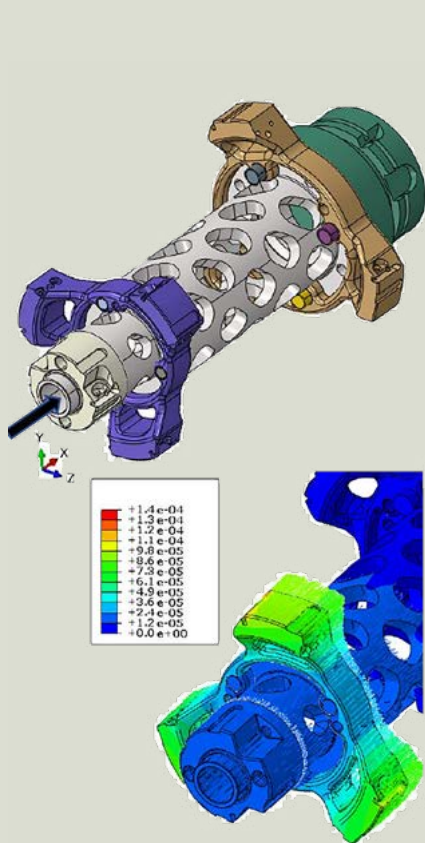


FEM Analysis

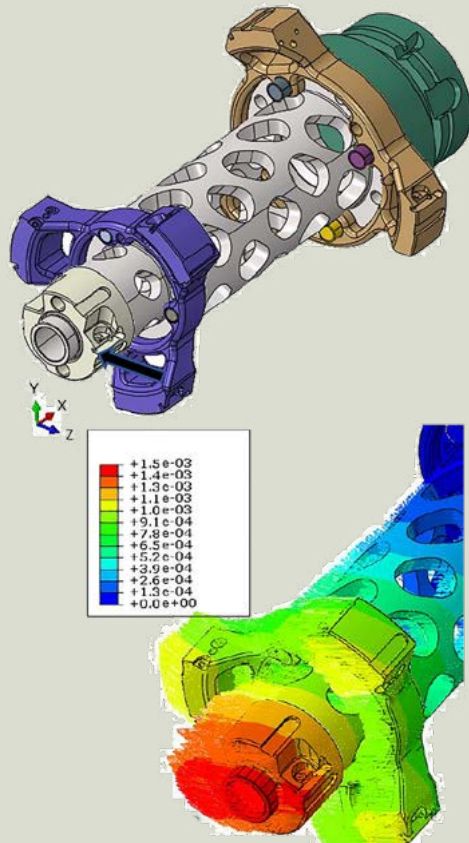
Finite Element Method (FEM) analysis enables the consideration of many parameters, such as cutting forces, displacement field during machining, natural frequency, and maximum deformation. Our designers utilize FEM analysis to resolve the obstacles associated with this challenging application.



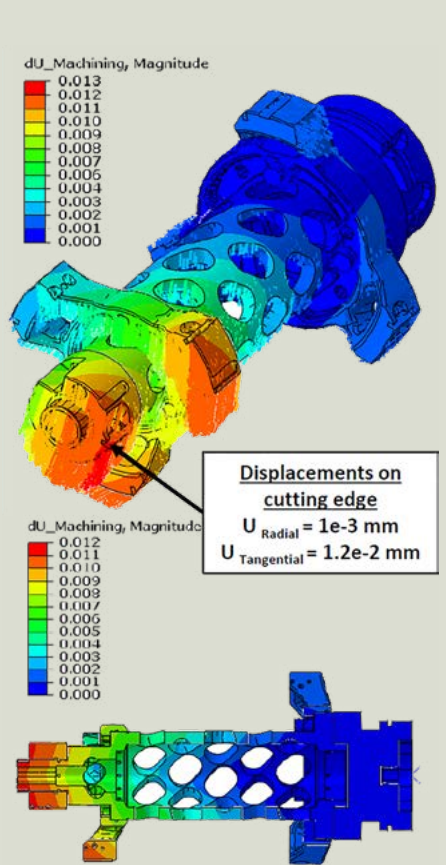
Static Axial FEM Analysis



Static Radial FEM Analysis



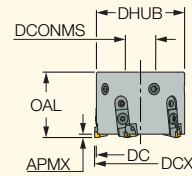
Dynamic Radial FEM Analysis



ALUFRAISE

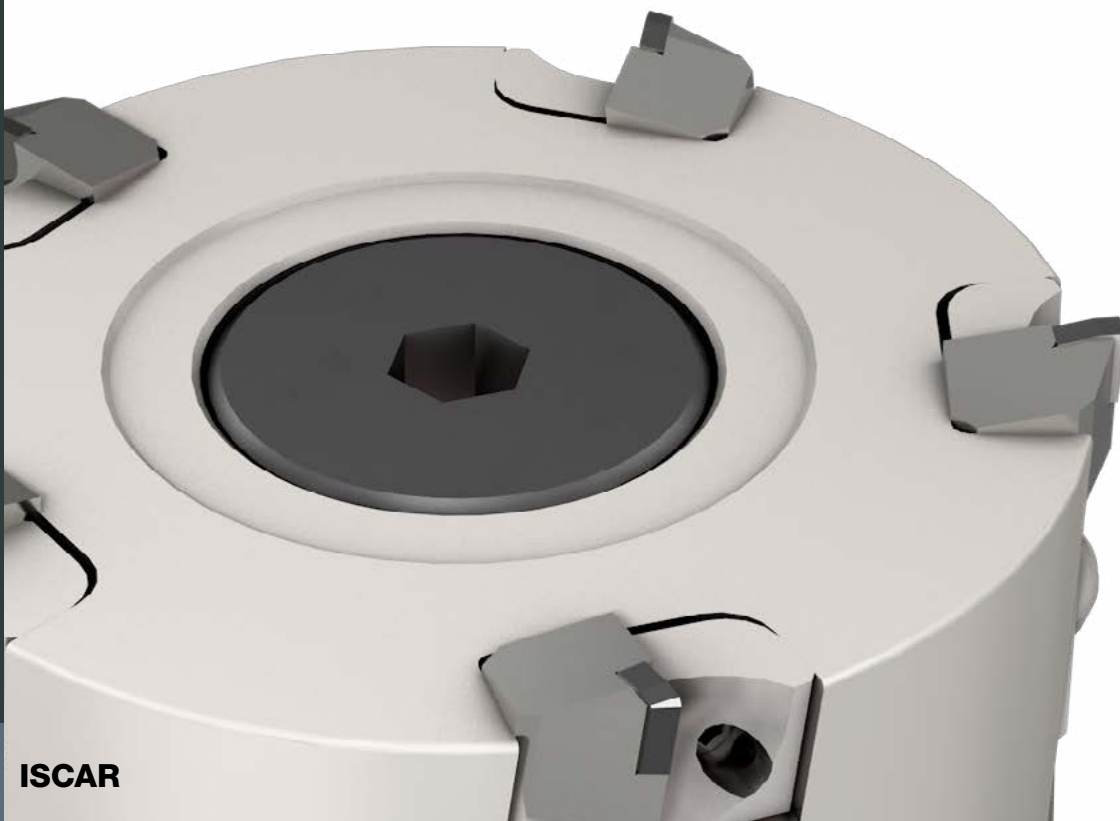
SPN-CA IT

Face Mills with Adjustable Cartridges for High Speed Machining of Aluminum Alloys, Cast Iron and Carbon Fiber



Designation	DC	DCX ⁽¹⁾	DCX(1)	APMX	APMX_2	OAL	DHUB	DCONMS	RPMX ⁽³⁾	
SPN D040-03-16R-CA-S	40.00	41.40	3	3.00	5.00	48.00	40.40	16.00	35000	0.40
SPN D050-04-22R-CA-A	50.00	51.40	4	3.00	5.00	55.00	49.40	22.00	31000	0.30
SPN D050-05-22R-CA-S	50.00	51.40	5	3.00	5.00	55.00	49.40	22.00	31000	0.60
SPN D063-03-22R-CA-A	63.00	64.40	3	3.00	5.00	55.00	61.60	22.00	27000	0.50
SPN D063-05-27R-CA-A	63.00	64.40	5	3.00	5.00	55.00	61.60	22.00	27000	0.50
SPN D063-06-22R-CA-A	63.00	64.40	6	3.00	5.00	55.00	61.60	22.00	27000	0.50
SPN D080-05-27R-CA-A	80.00	81.40	5	3.00	5.00	58.00	78.20	27.00	22000	0.80
SPN D080-06-27R-CA-A	80.00	81.40	6	3.00	5.00	58.00	78.20	27.00	22000	0.80
SPN D080-08-27R-CA-A	80.00	81.40	8	3.00	5.00	58.00	78.20	27.00	22000	0.80
SPN D080-10-27R-CA-A	80.00	81.40	10	3.00	5.00	58.00	78.20	27.00	22000	1.10
SPN D100-06-32R-CA-A	100.00	101.40	6	3.00	5.00	58.00	97.90	32.00	20500	0.70
SPN D100-08-32R-CA-A	100.00	101.40	8	3.00	5.00	58.00	97.90	32.00	20500	0.70
SPN D100-10-32R-CA-A	100.00	101.40	10	3.00	5.00	58.00	97.90	32.00	20500	0.75
SPN D100-12-32R-CA-T	100.00	101.40	12	3.00	5.00	58.00	97.90	32.00	20500	1.80
SPN D125-08-40R-CA-A	125.00	126.40	8	3.00	5.00	58.00	122.40	40.00	17550	1.10
SPN D125-10-40R-CA-A	125.00	126.40	10	3.00	5.00	58.00	122.40	40.00	17550	1.10
SPN D125-12-40R-CA-A	125.00	126.40	12	3.00	5.00	58.00	122.40	40.00	17550	1.20
SPN D125-14-40R-CA-A	125.00	126.40	14	3.00	5.00	58.00	122.40	40.00	17550	1.20
SPN D125-16-40R-CA-T	125.00	126.40	16	3.00	5.00	58.00	122.40	40.00	17550	2.70
SPN D160-10-40R-CA-A	160.00	161.40	10	3.00	5.00	58.00	156.90	40.00	14200	2.90
SPN D160-14-40R-CA-A	160.00	161.40	14	3.00	5.00	58.00	156.90	40.00	14200	2.90
SPN D160-18-40R-CA-A	160.00	161.40	18	3.00	5.00	58.00	156.90	40.00	14200	2.95
SPN D200-12-60R-CA-A	200.00	201.40	12	3.00	5.00	63.00	196.40	60.00	11500	4.75
SPN D200-16-60R-CA-A	200.00	201.40	16	3.00	5.00	63.00	196.40	60.00	11500	4.77
SPN D200-24-60R-CA-A	200.00	201.40	24	3.00	5.00	63.00	196.40	60.00	11500	4.80
SPN D250-16-60R-CA-A	250.00	251.40	16	3.00	5.00	63.00	246.40	60.00	9200	7.60
SPN D250-20-60R-CA-A	250.00	251.40	20	3.00	5.00	63.00	246.40	60.00	9200	7.60
SPN D250-30-60R-CA-A	250.00	251.40	30	3.00	5.00	63.00	246.40	60.00	9200	7.70
SPN D315-18-60R-CA-A	315.00	316.40	18	3.00	5.00	80.00	311.40	60.00	7300	11.50
SPN D315-24-60R-CA-A	315.00	316.40	24	3.00	5.00	80.00	311.40	60.00	7300	11.55
SPN D315-38-60R-CA-A	315.00	316.40	38	3.00	5.00	80.00	311.40	60.00	7300	11.72
SPN D400-26-60R-CA-A	400.00	401.40	26	3.00	5.00	80.00	396.40	60.00	5750	18.00
SPN D400-50-60R-CA-A	400.00	401.40	50	3.00	5.00	80.00	396.40	60.00	5750	17.50

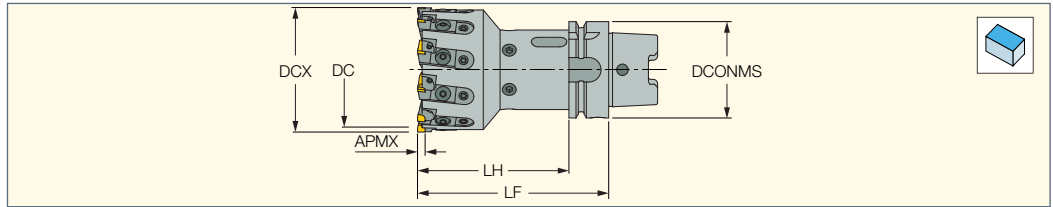
(1) Cutting diameter maximum
 (2) Number of inserts (or edges for solid tool)
 (3) Maximum RPM



ALUFRAISE HSK

SPN D#HSK#R-CA IT

90° Endmills with Integral HSK Adaptation Carrying Super Positive Inserts for Machining Aluminum at High Rotation Speeds



Designation	DC	DCX ⁽¹⁾	APMX	APMX_2	LF	LH	DCONMS	CICT ⁽²⁾	RPMX ⁽³⁾	
SPN D040-03-HSK 50-R-CA	40.00	41.40	3.00	5.00	125.00	99.0	50.00	3	35000	1.35
SPN D040-03-HSK 63-R-CA	40.00	41.40	3.00	5.00	125.00	99.0	63.00	3	35000	1.65
SPN D050-05-HSK 50-R-CA	50.00	51.40	3.00	5.00	125.00	99.0	50.00	5	31000	1.70
SPN D050-05-HSK 63-R-CA	50.00	51.40	3.00	5.00	125.00	99.0	63.00	5	31000	1.95
SPN D063-07-HSK 50-R-CA	63.00	64.40	3.00	5.00	125.00	99.0	50.00	7	27000	1.80
SPN D063-07-HSK 63-R-CA	63.00	64.40	3.00	5.00	125.00	99.0	63.00	7	27000	2.30
SPN D080-10-HSK 63-R-CA	80.00	81.40	3.00	5.00	125.00	99.0	63.00	10	22000	2.90
SPN D080-10-HSK100-R-CA	80.00	81.40	3.00	5.00	125.00	96.0	100.00	10	22000	5.40
SPN D100-12-HSK 63-R-CA	100.00	101.40	3.00	5.00	125.00	99.0	63.00	12	20500	3.95
SPN D100-12-HSK100-R-CA	100.00	101.40	3.00	5.00	125.00	96.0	100.00	12	20500	6.50
SPN D125-16-HSK100-R-CA	125.00	126.40	3.00	5.00	125.00	99.0	100.00	16	17550	8.10

- A cooling tube must be used with all internal coolant HSK spindles (should be ordered separately)
- Important: When machining at very high cutting speeds and the insert needs replacing, it is also recommended to replace the screws
- Kit balancing screws should be ordered separately
- Insert tightening torque: 6 (Nxm)

⁽¹⁾ Cutting diameter maximum

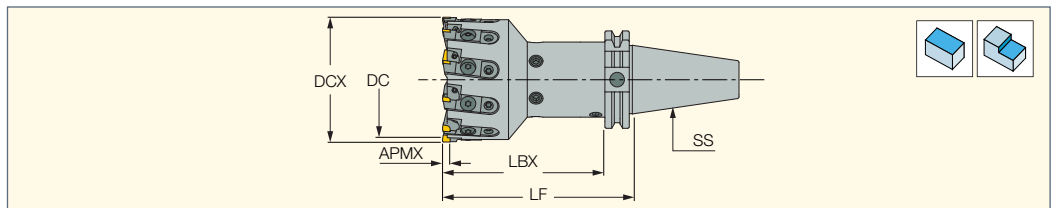
⁽²⁾ Number of inserts (or edges for solid tool)

⁽³⁾ Maximum RPM

ALUFRAISE CAT

SPN D#CAT#R-CA IT

90° Endmills with Integral CAT Adaptation Carrying Super Positive Inserts for Machining Aluminum at High Rotation Speeds



Designation	DC	DCX ⁽¹⁾	APMX	APMX_2	LF	LBX	CICT ⁽²⁾	SS	RPMX ⁽³⁾	
SPN D040-03-INT40-R-CA	40.00	41.40	3.00	5.00	125.00	121.80	3	40	35000	2.00
SPN D050-05-INT40-R-CA	50.00	51.40	3.00	5.00	125.00	121.80	5	40	31000	2.20
SPN D063-07-INT40-R-CA	63.00	64.40	3.00	5.00	125.00	121.80	7	40	27000	2.50
SPN D080-10-INT40-R-CA	80.00	81.40	3.00	5.00	125.00	121.80	10	40	22000	3.10

- A cooling tube must be used with all internal coolant HSK spindles (should be ordered separately)
- Important: When machining at very high cutting speeds and the insert needs replacing, it is also recommended to replace the screws
- Kit balancing screws should be ordered separately
- Insert tightening torque: 6 (Nxm)

⁽¹⁾ Cutting diameter maximum

⁽²⁾ Number of inserts (or edges for solid tool)

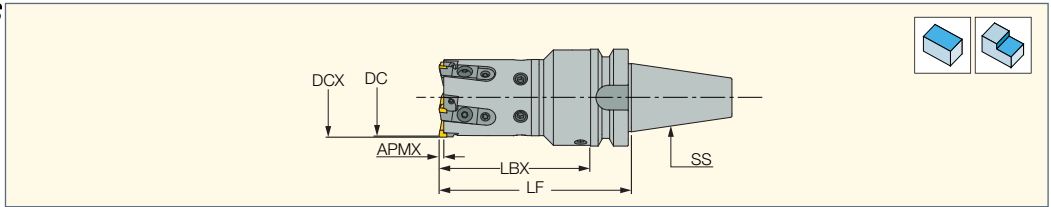
⁽³⁾ Maximum RPM



ALUFRAISE BT MAS

SPN D#BT#R-CA IT

90° Endmills with Integral BT Adaptation Carrying Super Positive Inserts for Machining Aluminum at High Rotation Speeds



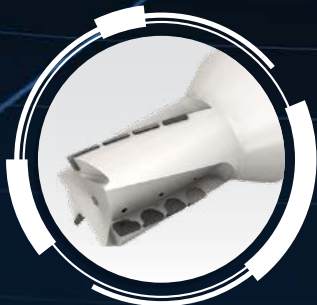
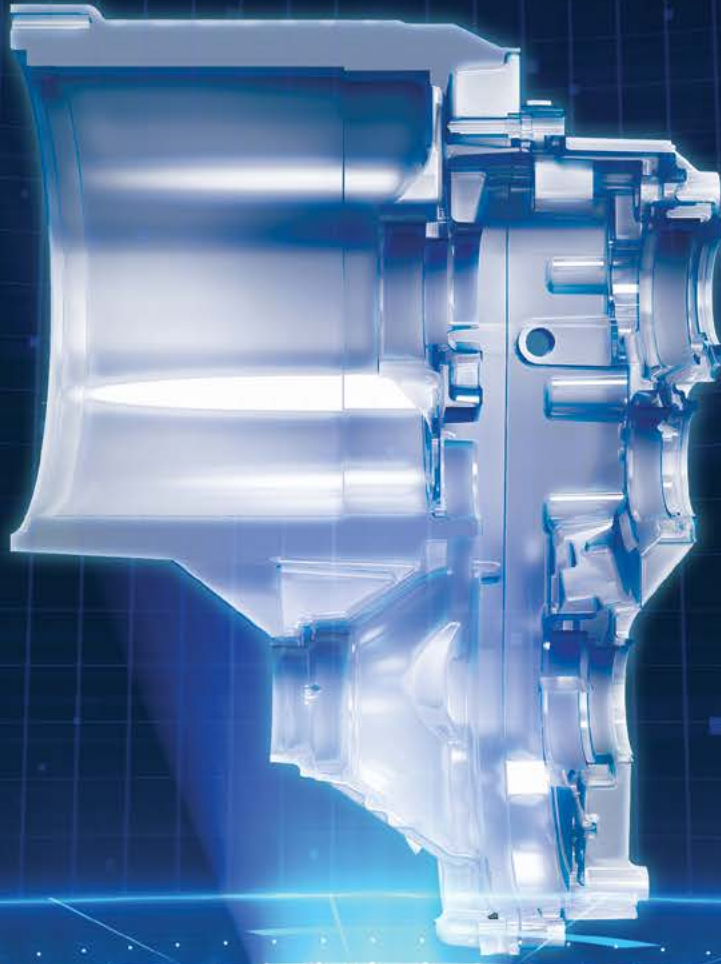
Designation	DC	DCX ⁽¹⁾	APMX	APMX_2	LF	LBX	CICT ⁽²⁾	SS	RPMX ⁽³⁾	
SPN D040-03-BT40-R-CA	40.00	41.40	3.00	5.00	125.00	98.00	3	40	35000	2.10
SPN D050-05-BT40-R-CA	50.00	51.40	3.00	5.00	125.00	98.00	5	40	31000	2.50
SPN D063-07-BT40-R-CA	63.00	64.40	3.00	5.00	125.00	98.00	7	40	27000	2.60
SPN D080-10-BT40-R-CA	80.00	81.40	3.00	5.00	125.00	98.00	10	40	22000	3.50

- A cooling tube must be used with all internal coolant HSK spindles (should be ordered separately)
- Important: When machining at very high cutting speeds and the insert needs replacing, it is also recommended to replace the screws
- Kit balancing screws should be ordered separately
- Insert tightening torque: 6 (Nxm)

(1) Cutting diameter maximum
 (2) Number of inserts (or edges for solid tool)
 (3) Maximum RPM



TRANSMISSION HOUSING



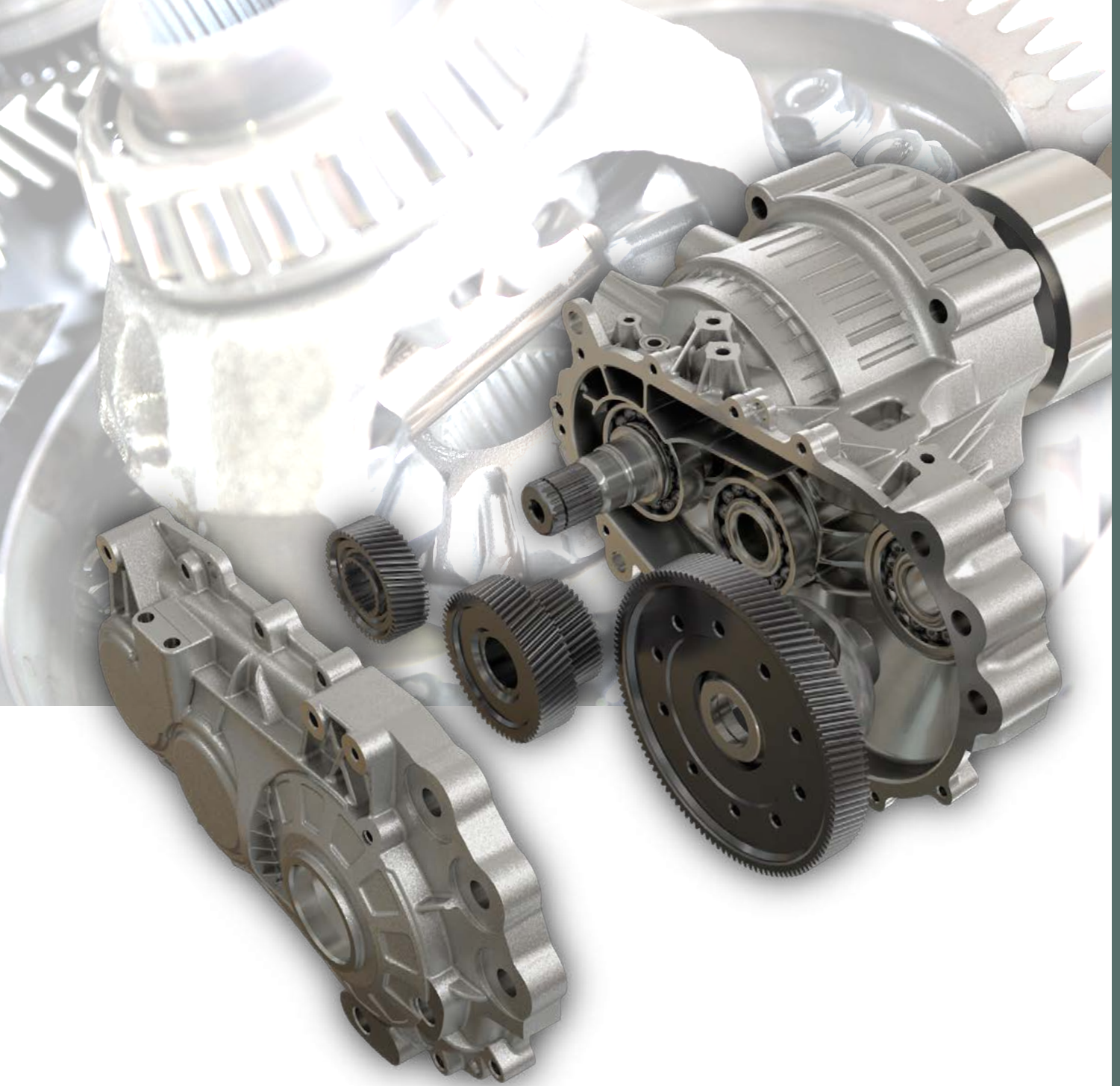


Brazed Cutters

The variety of **ISCAR** brazed cutters, endmills and integral monoblock tools, all regrindable, allow a perfect use in a wide range of operations and materials and guarantee excellent performances in terms of quality, consistency and working speed in facing, interpolating and profiling operations.

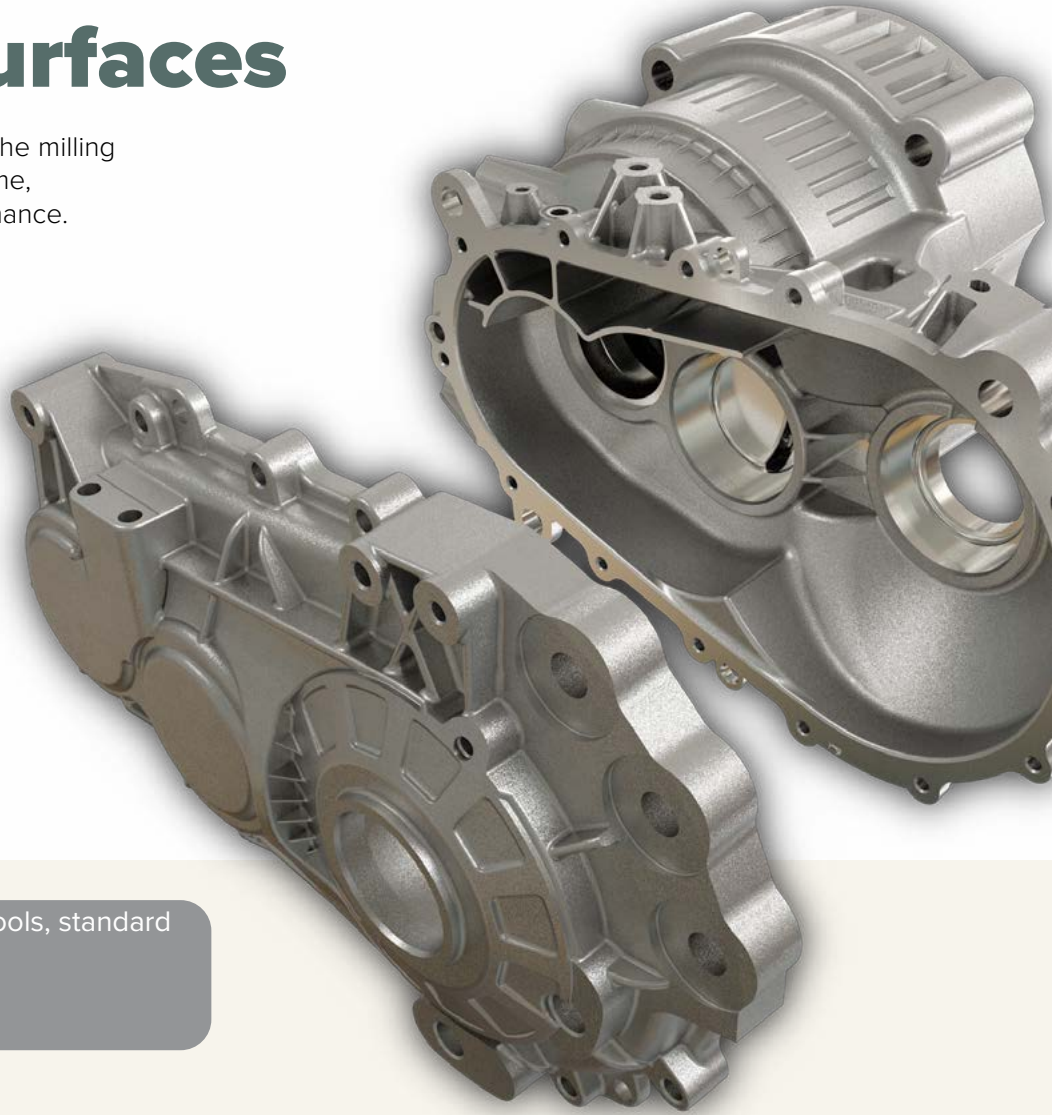
The studies which have been made on the different types of milling operations and the acquired know-how have allowed **ISCAR** to make a variety of extremely flexible brazed cutters, which can be employed immediately in any application. Their structural and technical features, together with the strict quality inspections they go through, make the **ISCAR** brazed cutters the ideal tool for both roughing and finishing.





Milling Surfaces

With a variety of PCD or inserts, the milling line guarantees the best cycle time, surface finish quality and performance.



Milling with ISCAR standard tools, standard geometries with very high cost-effective machining and superior productivity.

Brazed PCD Cutting Edges



Indexable PCD Cartridges



Indexable Tangential PCD Insert



Mini Indexable PCD Cartridges



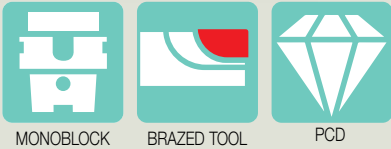
Bearing Seat For Roughing

Roughing operations are crucial and the capacity to offer different approaches to the workpiece and CNC machine structure, are key factors to get a stable and productive process.



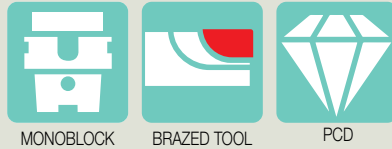
Option 1 Flexibility

Helical milling cutter with brazed PCD cutting edges ideal to approach thin structures



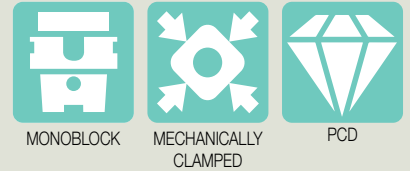
Option 2 Performance

Brazed PCD cutting edges for high productivity option



Option 3 Indexability

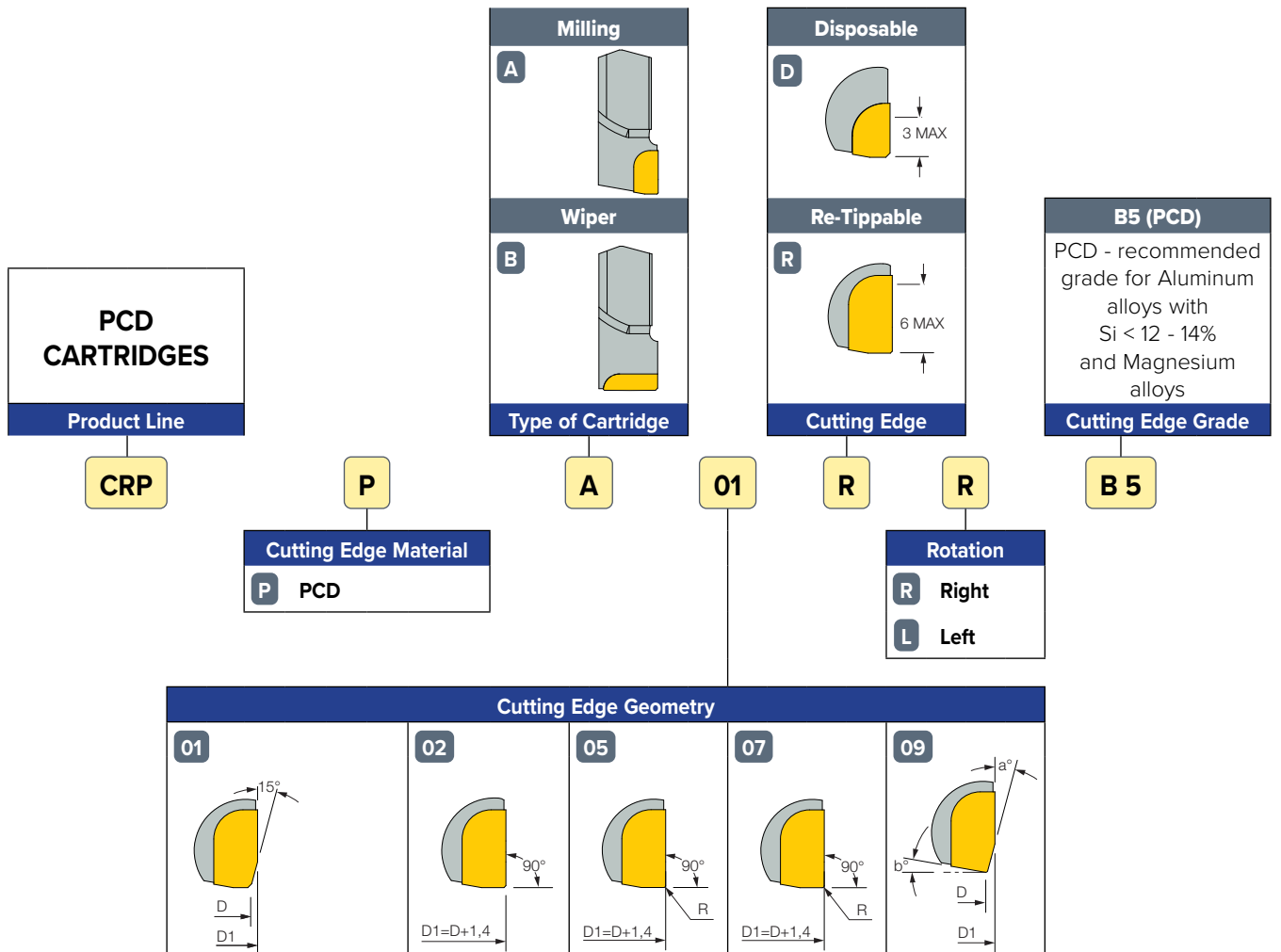
Indexable PCD cutting edges for cost effectiveness

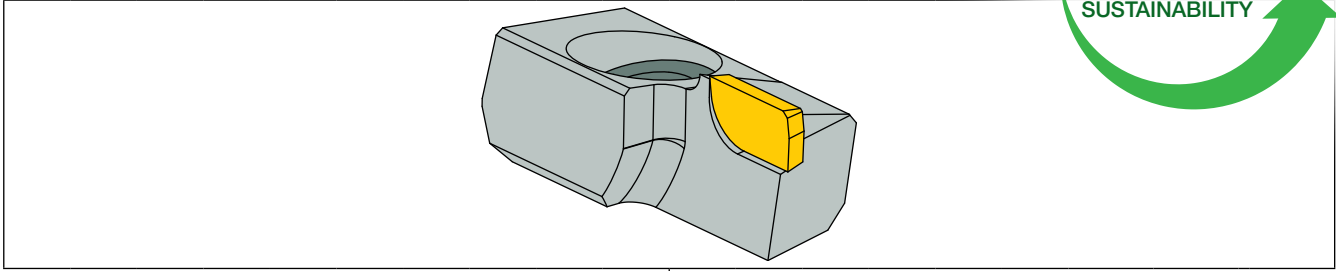




Cartridges

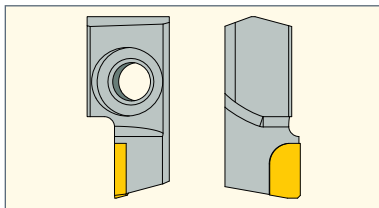
Designation System for Cartridges





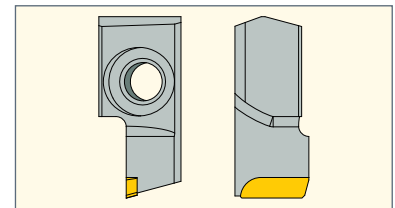
GEOMETRY				
01	02	05	07	09
Recommended for finishing not square shoulder surfaces. Suitable for roughing too. Achievable surface: $0.3 \leq Ra \leq 0.8$	Recommended for finishing square shoulder surfaces. Suitable for roughing too. Achievable surface: $0.3 \leq Ra \leq 0.8$	Suitable for roughing or for cutting material with a high impurity content. Achievable surface: $0.4 \leq Ra < 1$	Suitable for finishing rough surfaces. Achievable surface: $0.4 \leq Ra < 1$	Suitable for heavy roughing operations. Achievable surface: $0.8 \leq Ra \leq 3.2$
WIPER				
01	02		07	
01	02		02	
Achievable surface: $0,1 \leq Ra \leq 0,5$	Achievable surface: $0,1 \leq Ra \leq 0,5$		Achievable surface: $0,1 \leq Ra \leq 0,5$	

CRPA
Milling cartridges



Designation	PCD Grade B5
CRPA01DRB5	●
CRPA01RRB5	●
CRPA02DRB5	●
CRPA02RRB5	●
CRPA05DRB5	●
CRPA05RRB5	●
CRPA07DRB5	●
CRPA07RRB5	●
CRPA09DRB5	●
CRPA09RRB5	●

TMCPR
Wiper cartridge



Designation	Grade 90
TMCPR01RRB5	●
TMCPR02RRB5	●

Bearing Seat Finishing

(before Assembly)

Surface quality, tight tolerances and thin structures: **ISCAR** PCD's tooling solutions are focused to achieve the result in terms of productivity and stability. The most appropriate cutting technology is chosen in order to produce the best cost effective solution.

- Highest precision requirements (IT6/IT7)
- Highest process reliability
- High process productivity



Option 1 Productivity

Multifunctional tool for high productivity with brazed PCD cutting edges



CENTERING
MODULE



BRAZED TOOL



PCD



Option 2 Wear Compensation

PCD brazed cutting edges with mechanical wear compensation system



CENTERING
MODULE



BRAZED TOOL



PCD



Option 3 Stability

High stability with PCD guide pads and PCD cutting blades



CENTERING
MODULE



PADS AND
BLADE



PCD





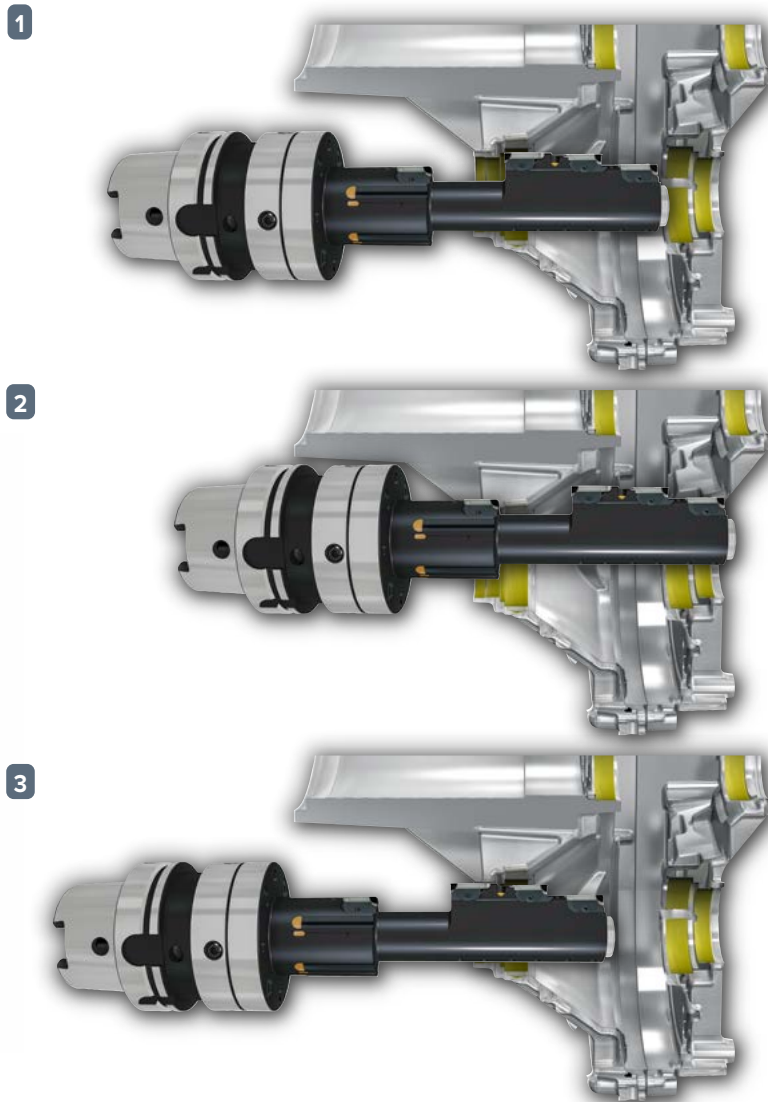
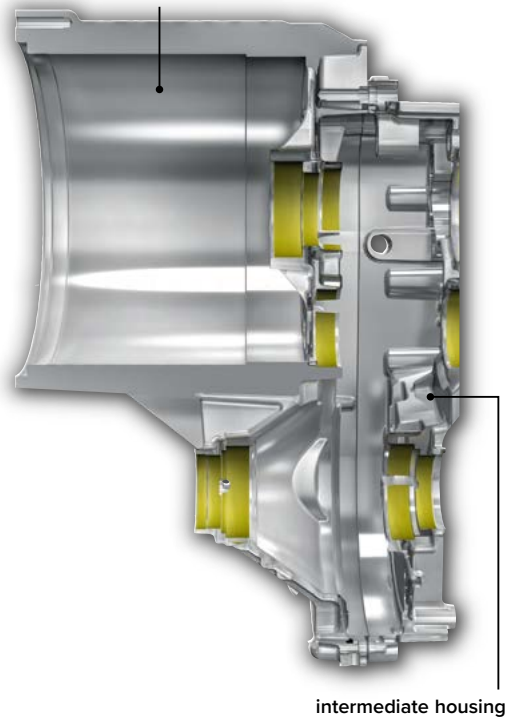
Ensuring the Coaxiality and Geometric Quality when the Part is to be Machined and Assembled

- Highest precision requirements (IT6/IT7)
- Highest coaxiality

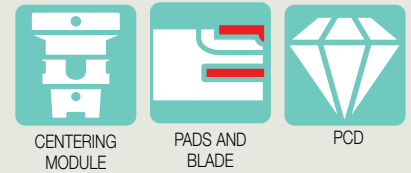
MACHINING SEQUENCE

- 1 The tool enters the part specifically oriented without rotation.
- 2 When the tool axis is aligned with the part axis, the spindle rotation starts; the front diameters are machined by a pushing technique. The back diameters are machined by a pulling technique.
- 3 Once the tool is properly aligned it exits the part without rotation.

Motor housing integrated with transmission



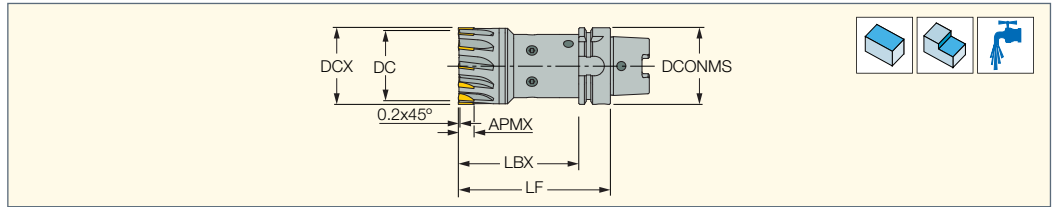
Push & Pull technique for superior coaxiality of assembly



ALUFRAISE

SPN D-HSK-R IT

90° Endmills with HSK
Adaptation on Which
Brazed PCD Inserts for
Machining Aluminum at
High Rotational Speeds



Designation	DC	DCX ⁽¹⁾	APMX	LF	LBX	DCONMS	CICT ⁽²⁾	RPMX ⁽³⁾	kg
SPN D032-06-HSK 63R-BRC02	31.60	32.00	15.00	125.00	99.00	63.00	6	35000	1.30
SPN D040-08-HSK 63R-BRC02	39.60	40.00	15.00	125.00	96.00	63.00	8	35000	1.65
SPN D050-10-HSK 63R-BRC02	49.60	50.00	10.00	125.00	96.00	63.00	10	31000	2.00
SPN D063-12-HSK 63R-BRC02	62.60	63.00	10.00	125.00	99.00	63.00	12	27000	2.45
SPN D080-14-HSK 63R-BRC02	79.60	80.00	10.00	125.00	99.00	63.00	14	22000	2.60
SPN D080-14-HSK100R-BRC02	79.60	80.00	10.00	125.00	99.00	100.00	14	22000	5.80
SPN D100-16-HSK 63R-BRC02	99.60	100.00	10.00	100.00	99.00	63.00	16	20500	3.70
SPN D100-16-HSK100R-BRC02	99.60	100.00	10.00	125.00	96.00	100.00	16	20500	6.70
SPN D125-20-HSK 63R-BRC02	124.60	125.00	10.00	100.00	99.00	63.00	20	17750	5.50
SPN D125-20-HSK100R-BRC02	124.60	125.00	10.00	100.00	99.00	100.00	20	17750	8.50

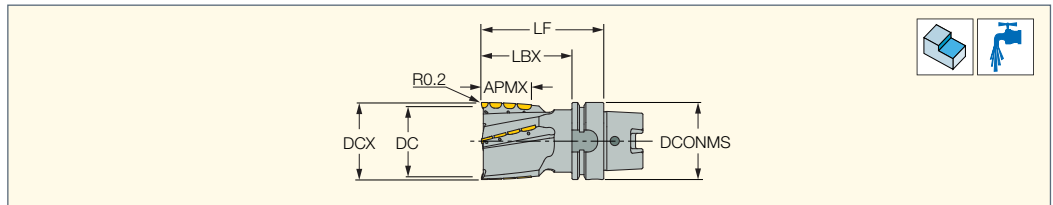
- A cooling tube must be used with all internal coolant HSK spindles (to be order separately)
- Important: When machining at very high cutting speeds and the insert needs replacing, it is also recommended to replace the screws
- Kit balancing screws should be ordered separately
- Insert tightening torque: 6 (Nxm)

- ⁽¹⁾ Cutting diameter maximum
- ⁽²⁾ Number of inserts (or edges for solid tool)
- ⁽³⁾ Maximum RPM

HELIALU

SMN D-HSK IT

Extended Flute Endmills
with HSK Adaptation on
which Brazed PCD Inserts
for Machining Aluminum at
High Rotational Speeds



Designation	DC	DCX ⁽¹⁾	APMX	LF	LBX	DCONMS	CICT ⁽²⁾	SS	RPMX ⁽³⁾	kg
SMN D032-3-30HSK63R-BRR02	31.60	32.00	30.00	100.00	74.00	63.00	3	63	35000	1.12
SMN D040-3-40HSK63R-BRR02	39.60	40.00	40.00	100.00	74.00	63.00	3	63	35000	1.22
SMN D050-4-40HSK63R-BRR02	49.60	50.00	40.00	100.00	74.00	63.00	4	63	31000	1.60
SMN D063-4-40HSK63R-BRR02	62.60	63.00	40.00	100.00	74.00	63.00	4	63	27000	1.80

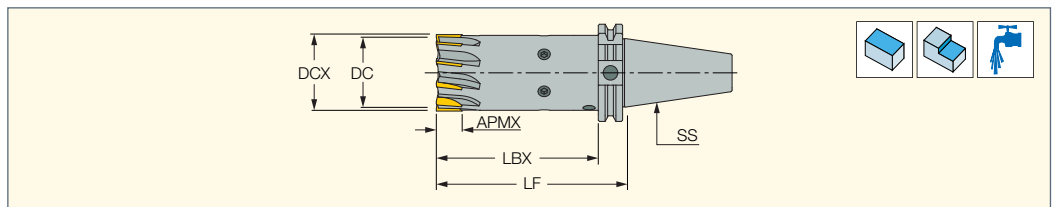
- A cooling tube must be used with all internal coolant HSK spindles (to be order separately)
- Important: When machining at very high cutting speeds and the insert needs replacing, it is also recommended to replace the screws
- Kit balancing screws should be ordered separately
- Insert tightening torque: 6 (Nxm)

- ⁽¹⁾ Cutting diameter maximum
- ⁽²⁾ Number of inserts (or edges for solid tool)
- ⁽³⁾ Maximum RPM

ALUFRAISE

SPN D-INT40 IT

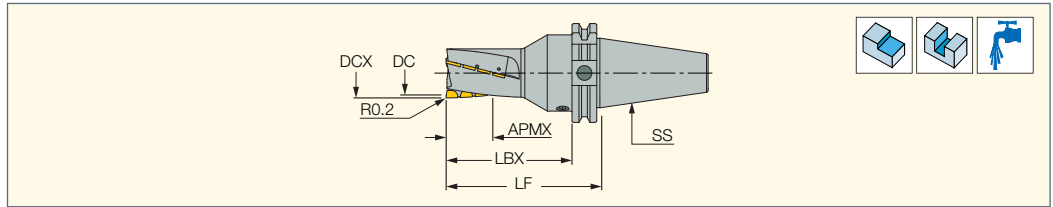
90° Endmills with BT Adaptation
on which Brazed PCD Inserts
for Machining Aluminum at
High Rotational Speeds



Designation	DC	DCX ⁽¹⁾	APMX	LF	LBX	CICT ⁽²⁾	SS	RPMX ⁽³⁾	kg
SPN D032-06-INT40-R-BRC02	31.60	32.00	15.00	125.00	105.90	6	40	35000	1.60
SPN D040-08-INT40-R-BRC02	39.60	40.00	15.00	125.00	105.90	8	40	35000	1.80
SPN D050-10-INT40-R-BRC02	59.60	50.00	15.00	125.00	105.90	10	40	31000	2.20

- ⁽¹⁾ Cutting diameter maximum
- ⁽²⁾ Number of inserts (or edges for solid tool)
- ⁽³⁾ Maximum RPM

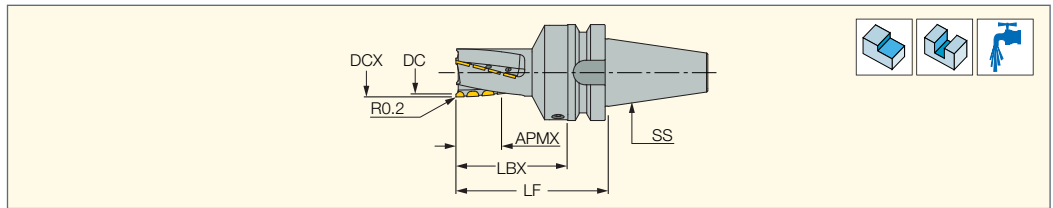
SMN D-INT40 IT
 Extended Flute Endmills
 with DIN69871 Tapered
 Shanks on which Brazed
 PCD Inserts for Machining
 Aluminum High Speeds



Designation	DC	DCX ⁽¹⁾	APMX	LF	LBX	CICT ⁽²⁾	SS	RPMX ⁽³⁾	
SMN D032-3-30INT40R-BRR02	31.60	32.00	30.00	100.00	105.90	3	40	35000	1.40
SMN D040-3-40INT40R-BRR02	39.60	40.00	40.00	100.00	105.90	3	40	35000	1.50
SMN D050-4-40INT40R-BRR02	49.60	50.00	40.00	100.00	105.90	4	40	31000	2.00
SMN D063-4-40INT40R-BRR02	62.60	63.00	40.00	100.00	105.90	4	40	27000	2.20

⁽¹⁾ Cutting diameter maximum
⁽²⁾ Number of inserts (or edges for solid tool)
⁽³⁾ Maximum RPM

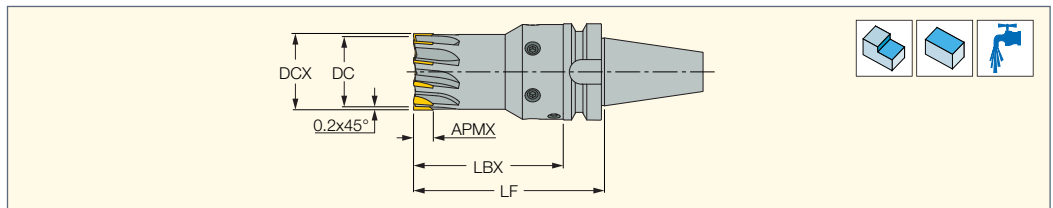
SMN D-BT40 IT
 Extended Flute Endmills
 with BT MAS-403 Tapered
 Shanks on Which Brazed
 PCD Inserts for Machining
 Aluminum at High Speeds



Designation	DC	DCX ⁽¹⁾	APMX	LF	LBX	CICT ⁽²⁾	SS	RPMX ⁽³⁾	
SMN D032-03-30BT40R-BRR02	31.60	32.00	30.00	100.00	73.00	3	40	35000	1.60
SMN D040-03-40BT40R-BRR02	39.60	40.00	40.00	100.00	73.00	3	40	35000	2.00
SMN D050-04-40BT40R-BRR02	49.60	50.00	40.00	100.00	73.00	4	40	31000	1.70
SMN D063-04-40BT40R-BRR02	62.60	63.00	40.00	100.00	73.00	4	40	27000	2.20

⁽¹⁾ Cutting diameter maximum
⁽²⁾ Number of inserts (or edges for solid tool)
⁽³⁾ Maximum RPM

SPN D-BT40 IT
 90° Endmills with BT MAS-
 403 Tapered Shanks on
 Which Brazed PCD Inserts
 for Machining Aluminum
 at High Speeds



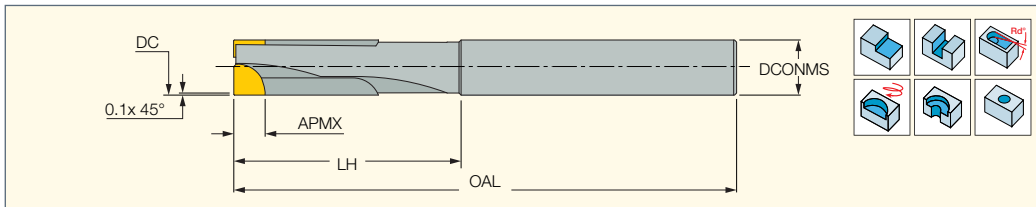
Designation	DC	DCX ⁽¹⁾	APMX	LF	LBX	CICT ⁽²⁾	SS	RPMX ⁽³⁾	
SPN D032-06-BT40-R-BRC02	31.60	32.00	15.00	125.00	105.90	6	40	35000	1.90
SPN D040-08-BT40-R-BRC02	39.60	40.00	15.00	125.00	105.90	8	40	35000	2.20
SPN D050-10-BT40-R-BRC02	49.60	50.00	15.00	125.00	105.90	10	40	31000	2.52

⁽¹⁾ Cutting diameter maximum
⁽²⁾ Number of inserts (or edges for solid tool)
⁽³⁾ Maximum RPM

CHATTERFREE
SOLID MILL LINE

SEHFD IT

PCD Endmills for High Speed Machining of Aluminum, CFRP, and Graphite



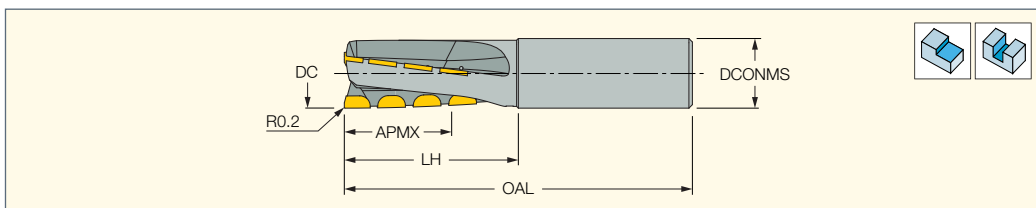
Dimensions								
Designation	DC	APMX	OAL	LH	DCONMS	CICT ⁽¹⁾	Shank	kg
SEHFD04Z01CM05L10C01	4.00	10.00	67.00	36.0	5.00	1	C	0.01
SEHFD05Z01CM05L10C01	5.00	10.00	67.00	36.0	5.00	1	C	0.02
SEHFD05Z01CM06L10C01	5.00	10.00	67.00	27.0	6.00	1	C	0.02
SEHFD06Z02CM06L10C01	6.00	10.00	67.00	27.0	6.00	2	C	0.02
SEHFD06Z02CM06L20C01	6.00	20.00	67.00	27.0	6.00	2	C	0.02
SEHFD08Z02CM08L10C01	8.00	10.00	73.00	33.0	8.00	2	C	0.04
SEHFD08Z02CM08L20C01	8.00	20.00	73.00	33.0	8.00	2	C	0.04
SEHFD10Z02CM10L10C02	10.00	10.00	82.00	38.0	10.00	2	C	0.08
SEHFD10Z02CM10L20C02	10.00	20.00	82.00	38.0	10.00	2	C	0.09
SEHFD12Z02CM12L10C02	12.00	10.00	93.00	43.0	12.00	2	C	0.13
SEHFD12Z02CM12L20C02	12.00	20.00	93.00	43.0	12.00	2	C	0.13

⁽¹⁾ Number of inserts (or edges for solid tool)

HELIALU

SMN D-03-30C IT

Extended Flute PCD Endmills for High Speed Machining of Aluminum, CFRP, and Graphite



Dimensions								
Designation	DC	APMX	OAL	LH	DCONMS	CICT ⁽¹⁾	Shank	kg
SMN D16-03-30C16-R-BRR02	16.00	30.00	100.00	50.0	16.00	3	C	0.22
SMN D20-03-30C20-R-BRR02	20.00	30.00	100.00	50.0	20.00	3	C	0.36
SMN D25-03-30C25-R-BRR02	25.00	30.00	100.00	45.0	25.00	3	C	0.56

⁽¹⁾ Number of inserts (or edges for solid tool)





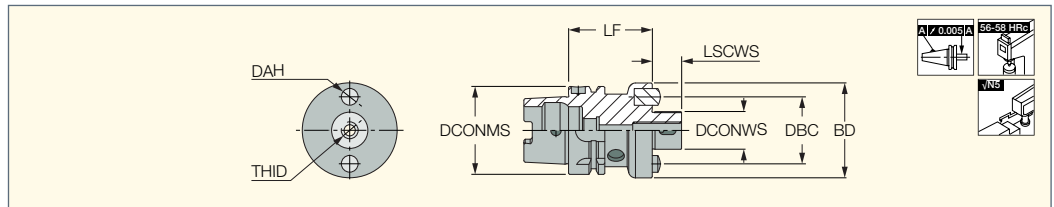
HOLDERS




HSK

HSK A-SEM IT

Shell Mill Holders with HSK
DIN69893 Form A Tapered
Shanks for High-Speed
Machining with IT.TE.DI. Tools



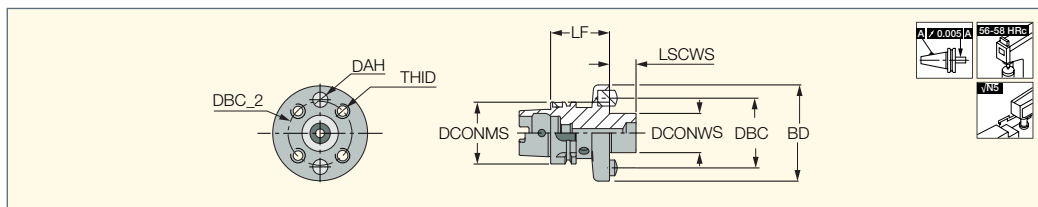
Designation	DCONMS	DCONWS	BD	LSCWS	LF	THID	DAH	DBC	
HSK A40 SEM16X50 A-IT	40.00	16.00	41.00	13.00	50.00	M6	6.00	28.60	0.50
HSK A40 SEM22X50 A-IT	40.00	22.00	50.00	19.00	50.00	M10	8.00	34.00	0.55
HSK A40 SEM22X58X50 B-IT	40.00	22.00	58.00	19.00	50.00	M10	10.00	38.00	0.60
HSK A50 SEM16X50 A-IT	50.00	16.00	41.00	13.00	50.00	M6	6.00	28.60	0.80
HSK A50 SEM16X100 A-IT	50.00	16.00	41.00	13.00	100.00	M6	6.00	28.60	1.20
HSK A50 SEM22X50 A-IT	50.00	22.00	50.00	19.00	50.00	M10	8.00	34.00	1.10
HSK A50 SEM22X58X50 B-IT	50.00	22.00	58.00	19.00	50.00	M10	10.00	38.00	1.10
HSK A50 SEM22X100 A-IT	50.00	22.00	50.00	19.00	100.00	M10	8.00	34.00	1.30
HSK A50 SEM22X58X100 B-IT	50.00	22.00	58.00	19.00	100.00	M10	10.00	38.00	1.90
HSK A50 SEM27X60 A-IT	50.00	27.00	68.00	21.00	80.00	M12	12.00	48.00	1.00
HSK A50 SEM27X100 A-IT	50.00	27.00	68.00	21.00	100.00	M12	12.00	48.00	1.40
HSK A63 SEM16X50 A-IT	63.00	16.00	41.00	13.00	50.00	M6	6.00	28.60	1.50
HSK A63 SEM16X100 A-IT	63.00	16.00	41.00	13.00	100.00	M6	6.00	28.60	2.10
HSK A63 SEM22X50 A-IT	63.00	22.00	50.00	19.00	50.00	M10	8.00	34.00	1.80
HSK A63 SEM22X58X50 B-IT	63.00	22.00	58.00	19.00	50.00	M10	10.00	38.00	2.60
HSK A63 SEM22X100 A-IT	63.00	22.00	50.00	19.00	100.00	M10	8.00	34.00	2.60
HSK A63 SEM22X58X100 B-IT	63.00	22.00	58.00	19.00	100.00	M10	10.00	38.00	1.95
HSK A63 SEM27X60 A-IT	63.00	27.00	68.00	21.00	60.00	M12	12.00	48.00	2.10
HSK A63 SEM27X100 A-IT	63.00	27.00	68.00	21.00	100.00	M12	12.00	48.00	3.00
HSK A63 SEM32X60 A-IT	63.00	32.00	88.00	24.00	60.00	M16	14.00	60.00	1.10
HSK A63 SEM32X100 A-IT	63.00	32.00	88.00	24.00	100.00	M16	14.00	60.00	2.00
HSK A63 SEM40X60 A-IT	63.00	40.00	98.00	27.00	60.00	M20	16.00	71.00	2.10
HSK A63 SEM40X100 A-IT	63.00	40.00	98.00	27.00	100.00	M20	16.00	71.00	2.95
HSK A80 SEM16X60 A-IT	80.00	16.00	41.00	13.00	60.00	M6	6.00	28.60	1.90
HSK A80 SEM16X120 A-IT	80.00	16.00	41.00	13.00	120.00	M6	6.00	28.60	2.55
HSK A80 SEM22X60 A-IT	80.00	22.00	50.00	19.00	60.00	M10	8.00	34.00	2.50
HSK A80 SEM22X58X60 B-IT	80.00	22.00	58.00	19.00	60.00	M10	10.00	38.00	2.00
HSK A80 SEM22X120 A-IT	80.00	22.00	50.00	19.00	120.00	M10	8.00	34.00	2.85
HSK A80 SEM22X58X120 B-IT	80.00	22.00	58.00	19.00	120.00	M10	10.00	38.00	3.20
HSK A80 SEM27X60 A-IT	80.00	27.00	68.00	21.00	60.00	M12	12.00	48.00	2.80
HSK A80 SEM27X120 A-IT	80.00	27.00	68.00	21.00	120.00	M12	12.00	48.00	3.85
HSK A80 SEM32X60 A-IT	80.00	32.00	88.00	24.00	60.00	M16	14.00	60.00	2.50
HSK A80 SEM32X120 A-IT	80.00	32.00	88.00	24.00	120.00	M16	14.00	60.00	3.20
HSK A80 SEM40X60 A-IT	80.00	40.00	98.00	27.00	60.00	M20	16.00	71.00	2.72
HSK A80 SEM40X120 A-IT	80.00	40.00	98.00	27.00	120.00	M20	16.00	71.00	4.50
HSK A100 SEM22X60 A-IT	100.00	22.00	50.00	19.00	60.00	M10	8.00	34.00	3.20
HSK A100 SEM22X58X60 B-IT	100.00	22.00	58.00	19.00	60.00	M10	10.00	38.00	4.30
HSK A100 SEM22X120 A-IT	100.00	22.00	50.00	19.00	120.00	M10	8.00	34.00	5.90
HSK A100 SEM22X120 B-IT	100.00	22.00	58.00	19.00	120.00	M10	10.00	38.00	6.10
HSK A100 SEM27X60 A-IT	100.00	27.00	68.00	21.00	60.00	M12	12.00	48.00	4.00
HSK A100 SEM27X120 A-IT	100.00	27.00	68.00	21.00	120.00	M12	12.00	48.00	6.30
HSK A100 SEM32X70 A-IT	100.00	32.00	88.00	24.00	70.00	M16	14.00	60.00	4.30
HSK A100 SEM32X120 A-IT	100.00	32.00	88.00	24.00	120.00	M16	14.00	60.00	6.60
HSK A100 SEM40X70 A-IT	100.00	40.00	98.00	27.00	70.00	M20	16.00	71.00	3.20
HSK A100 SEM40X120 A-IT	100.00	40.00	98.00	27.00	120.00	M20	16.00	71.00	4.40

• A cooling tube must be used with all coolant through HSK spindles (to be order separately) • For internal coolant through the holder, the related COOLANT SET to be ordered via Accessories (applicable to certain tools only)

HSK

HSK A-FM IT

Shell Mill Holders with HSK
DIN 69893 Form A Tapered
Shanks for High-Speed
Machining with IT.TE.DI. Tools



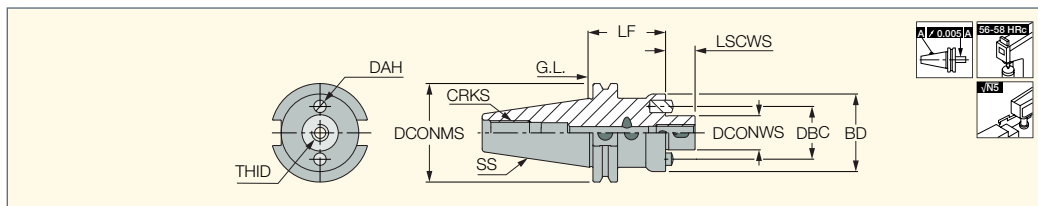
Designation	DCONMS	DCONWS	BD	LSCWS	LF	THID	DAH	DBC	DBC_2	kg
HSK A63 FM40X60 C-IT	63.00	40.00	98.00	27.00	60.00	M12	16.00	71.00	66.70	2.10
HSK A80 FM40X60 C-IT	80.00	40.00	98.00	27.00	60.00	M12	16.00	71.00	66.70	2.70
HSK A80 FM60X60 C-IT	80.00	60.00	140.00	40.00	60.00	M16	16.00	71.00	101.60	3.00
HSK A100 FM40X70 C-IT	100.00	40.00	98.00	27.00	70.00	M12	16.00	71.00	66.70	4.30
HSK A100 FM60X70 C-IT	100.00	60.00	140.00	40.00	70.00	M16	16.00	71.00	101.60	6.00

• A cooling tube must be used with all coolant through HSK spindles (to be order separately) • Peripheral clamping screws are not supplied

CAT

CAT SEM IT

Shell Mill Holders with
Caterpillar A/B Tapered shanks
for High-Speed Machining
with IT.TE.DI. tools

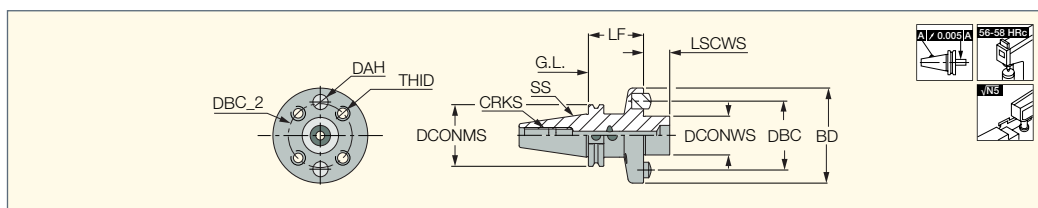


Designation	DCONWS	BD	LSCWS	LF	THID	DAH	DBC	SS	CRKS	kg
CAT40 SEM22X50 A-IT*	22.00	50.00	19.00	50.00	M10	8.00	34.00	40	M16	1.30
CAT40 SEM22X58X50 B-IT*	22.00	58.00	19.00	50.00	M10	10.00	38.00	40	M16	1.31
CAT40 SEM22X100 A-IT*	22.00	50.00	19.00	100.00	M10	8.00	34.00	40	M16	1.90
CAT40 SEM22X58X100 B-IT*	22.00	58.00	19.00	100.00	M10	10.00	38.00	40	M16	1.95
CAT40 SEM27X60 A-IT*	27.00	68.00	21.00	60.00	M12	12.00	48.00	40	M16	1.65
CAT40 SEM27X100 A-IT*	27.00	68.00	21.00	100.00	M12	12.00	48.00	40	M16	2.30
CAT40 SEM32X60 A-IT*	32.00	88.00	24.00	60.00	M16	14.00	60.00	40	M16	2.00
CAT40 SEM32X100 A-IT*	32.00	88.00	24.00	100.00	M16	14.00	60.00	40	M16	2.50
CAT40 SEM40X60 A-IT*	40.00	98.00	27.00	60.00	M20	16.00	71.00	40	M16	2.30
CAT40 SEM40X100 A-IT*	40.00	98.00	27.00	100.00	M20	16.00	71.00	40	M16	2.71
CAT50 SEM22X60 A-IT	22.00	50.00	19.00	60.00	M10	8.00	34.00	50	M24	3.65
CAT50 SEM22X58X60 B-IT	22.00	58.00	19.00	60.00	M10	10.00	38.00	50	M24	3.80
CAT50 SEM22X120 A-IT	22.00	50.00	19.00	120.00	M10	8.00	34.00	50	M24	5.50
CAT50 SEM22X58X120 B-IT	22.00	58.00	19.00	120.00	M10	10.00	38.00	50	M24	5.60
CAT50 SEM27X60 A-IT	27.00	68.00	21.00	60.00	M12	12.00	48.00	50	M24	3.90
CAT50 SEM27X120 A-IT	27.00	68.00	21.00	120.00	M12	12.00	48.00	50	M24	5.70
CAT50 SEM32X70 A-IT	32.00	88.00	24.00	70.00	M16	14.00	60.00	50	M24	4.60
CAT50 SEM32X120 A-IT	32.00	88.00	24.00	120.00	M16	14.00	60.00	50	M24	6.10
CAT50 SEM40X70 A-IT	40.00	98.00	27.00	70.00	M20	16.00	71.00	50	M24	4.90
CAT50 SEM40X120 A-IT	40.00	98.00	27.00	120.00	M20	16.00	71.00	50	M24	6.40

CAT

CAT FM IT

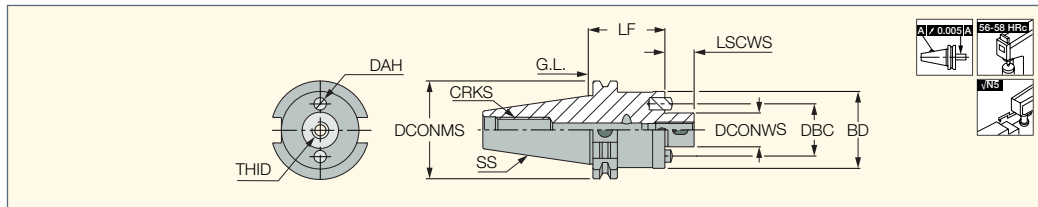
Face Mill Holders with
Caterpillar A/B Tapered Shanks
for High-Speed Machining
with IT.TE.DI. Tools



Designation	DCONWS	BD	LSCWS	LF	THID	DAH	DBC	DBC_2	SS	CRKS	kg
CAT40 FM40X60 C-IT*	40.00	98.00	27.00	60.00	M12	16.00	101.60	66.70	40	M16	2.30
CAT40 FM40X100 C-IT*	40.00	98.00	27.00	100.00	M12	16.00	101.60	66.70	40	M16	2.80
CAT50 FM40X70 C-IT	40.00	98.00	27.00	70.00	M12	16.00	101.60	66.70	50	M24	5.20
CAT50 FM40X120 C-IT	40.00	98.00	27.00	120.00	M12	16.00	101.60	66.70	50	M24	6.80
CAT50 FM60X70 C-IT	60.00	140.00	30.00	70.00	M16	16.00	101.60	101.60	50	M24	6.80
CAT50 FM60X120 C-IT	60.00	140.00	30.00	120.00	M16	16.00	101.60	101.60	50	M24	8.30

DIN69871

DIN69871-SEM IT
 Shell Mill Holders with DIN
 69871 Form AD/B Taper
 Shanks for High-Speed
 Machining with IT.TE.DI. Tools

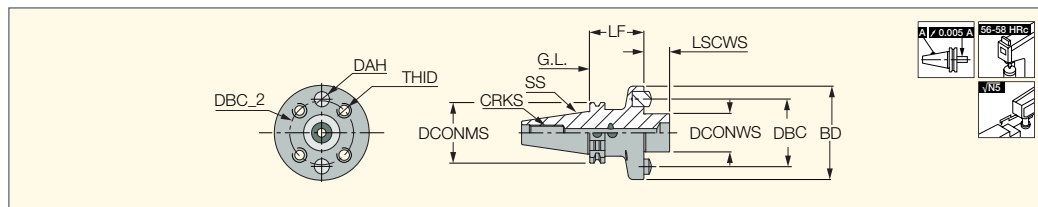


Designation	DCONWS	BD	LSCWS	LF	THID	DAH	DBC	SS	CRKS	kg
DIN69871 40 SEM16X50 A-IT	16.00	41.00	13.00	50.00	M6	6.00	28.60	40	M16	1.21
DIN69871 40 SEM16X100A-IT	16.00	41.00	13.00	100.00	M6	6.00	28.60	40	M16	1.80
DIN69871 40 SEM22X50 A-IT	22.00	50.00	19.00	50.00	M10	8.00	34.00	40	M16	1.30
DIN69871 40 SEM22X50 B-IT	22.00	58.00	19.00	50.00	M10	10.00	38.00	40	M16	1.42
DIN69871 40 SEM22X100A-IT	22.00	50.00	19.00	100.00	M10	8.00	34.00	40	M16	2.02
DIN69871 40 SEM22X100BIT	22.00	58.00	19.00	100.00	M10	10.00	38.00	40	M16	2.00
DIN69871 40 SEM27X60 A-IT	27.00	68.00	21.00	60.00	M12	12.00	48.00	40	M16	1.68
DIN69871 40 SEM27X100A-IT	27.00	68.00	21.00	100.00	M12	12.00	48.00	40	M16	2.26
DIN69871 40 SEM32X60 A-IT	32.00	88.00	24.00	60.00	M16	14.00	60.00	40	M16	2.07
DIN69871 40 SEM32X100A-IT	32.00	88.00	24.00	100.00	M16	14.00	60.00	40	M16	2.63
DIN69871 40 SEM40X60 A-IT	40.00	98.00	27.00	60.00	M20	16.00	71.00	40	M16	2.38
DIN69871 40 SEM40X100A-IT	40.00	98.00	27.00	100.00	M20	16.00	71.00	40	M16	3.00
DIN69871 50 SEM22X60 A-IT	22.00	50.00	19.00	60.00	M20	8.00	34.00	50	M24	4.00
DIN69871 50 SEM22X60 B-IT	22.00	58.00	19.00	60.00	M10	10.00	38.00	50	M24	4.00
DIN69871 50 SEM22X120A-IT	22.00	50.00	19.00	120.00	M10	8.00	34.00	50	M24	5.55
DIN69871 50 SEM22X120B-IT	22.00	58.00	19.00	120.00	M10	10.00	38.00	50	M24	5.50
DIN69871 50 SEM27X60 A-IT	27.00	68.00	21.00	60.00	M12	12.00	48.00	50	M24	4.00
DIN69871 50 SEM27X120A-IT	27.00	68.00	21.00	120.00	M12	12.00	48.00	50	M24	5.80
DIN69871 50 SEM32X70 A-IT	32.00	88.00	24.00	70.00	M16	14.00	60.00	50	M24	4.90
DIN69871 50 SEM32X120A-IT	32.00	88.00	24.00	120.00	M16	14.00	60.00	50	M24	6.76
DIN69871 50 SEM40X70 A-IT	40.00	98.00	27.00	70.00	M20	16.00	71.00	50	M24	5.00
DIN69871 50 SEM40X120A-IT	40.00	98.00	27.00	120.00	M20	16.00	71.00	50	M24	7.00

• For internal coolant through the holder, the related COOLANT SET to be order separately via Accessories (applicable to certain tools only)

DIN69871

DIN69871-FM IT
 Shell Mill Holders with DIN
 69871 Form AD/B Taper
 Shanks for High-Speed
 Machining with IT.TE.DI. Tools



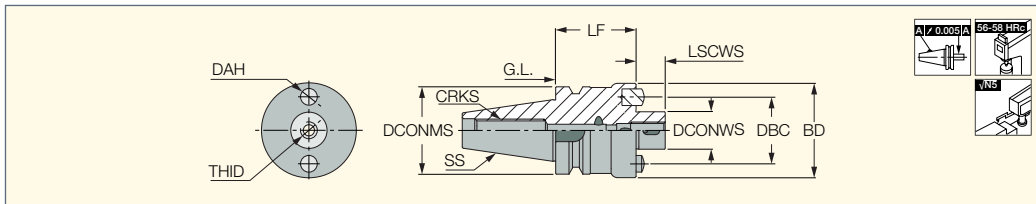
Designation	DCONWS	BD	LSCWS	LF	THID	DAH	DBC	DBC_2	SS	CRKS	kg
DIN69871 40 FM40X60 C-IT	40.00	98.00	27.00	60.00	M12	16.00	71.00	66.70	40	M16	2.40
DIN69871 50 FM40X70 C-IT	40.00	98.00	27.00	70.00	M12	16.00	71.00	66.70	50	M24	5.20
DIN69871 50 FM60X70 C-IT	60.00	140.00	40.00	70.00	M16	16.00	101.60	101.60	50	M24	7.10

• Peripheral clamping screws are not supplied

BT MAS

BT-SEM IT

Shell Mill Holders with BT MAS-403 AD/B Tapered Shanks for High-Speed Machining with IT.TE.DI. Tools

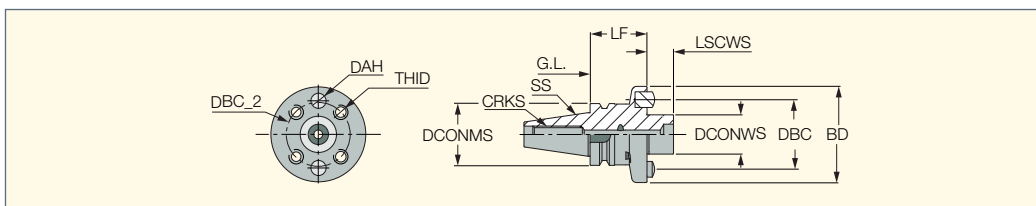


Designation	DCONWS	BD	LSCWS	LF	THID	DAH	DBC	SS	CRKS	kg
BT40 SEM16X50 A-IT	16.00	41.00	13.00	50.00	M6	6.00	28.60	40	M16	1.00
BT40 SEM16X100 A-IT	16.00	41.00	13.00	100.00	M6	6.00	28.60	40	M16	2.00
BT40 SEM22X50 A-IT	22.00	50.00	19.00	50.00	M10	8.00	34.00	40	M16	1.50
BT40 SEM22X58X50 B-IT	22.00	58.00	19.00	50.00	M10	10.00	38.00	40	M16	1.50
BT40 SEM22X100 A-IT	22.00	50.00	19.00	100.00	M10	8.00	34.00	40	M16	2.30
BT40 SEM22X58X100 B-IT	22.00	58.00	19.00	100.00	M10	10.00	38.00	40	M16	2.60
BT40 SEM27X60 A-IT	27.00	58.00	21.00	60.00	M12	12.00	48.00	40	M16	1.90
BT40 SEM27X100 A-IT	27.00	68.00	21.00	100.00	M12	12.00	48.00	40	M16	2.80
BT40 SEM32X60 A-IT	32.00	88.00	24.00	60.00	M16	14.00	60.00	40	M16	2.30
BT40 SEM32X100 A-IT	32.00	88.00	24.00	100.00	M16	14.00	60.00	40	M16	3.20
BT40 SEM40X60 A-IT	40.00	98.00	27.00	60.00	M20	16.00	71.00	40	M16	2.50
BT50 SEM40X100 A-IT	40.00	98.00	27.00	100.00	M20	16.00	71.00	40	M16	3.50
BT50 SEM22X60 A-IT	22.00	50.00	19.00	60.00	M10	8.00	34.00	50	M24	4.30
BT50 SEM22X58X60 B-IT	22.00	58.00	19.00	60.00	M10	10.00	38.00	50	M24	4.40
BT50 SEM22X120 A-IT	22.00	50.00	19.00	120.00	M10	8.00	34.00	50	M24	5.70
BT50 SEM22X58X120 B-IT	22.00	58.00	19.00	120.00	M10	10.00	38.00	50	M24	5.90
BT50 SEM27X60 A-IT	27.00	68.00	21.00	60.00	M12	12.00	48.00	50	M24	4.40
BT50 SEM27X120 A-IT	27.00	68.00	21.00	120.00	M12	12.00	48.00	50	M24	6.20
BT50 SEM32X70 A-IT	32.00	88.00	24.00	70.00	M16	14.00	60.00	50	M24	5.10
BT50 SEM32X120 A-IT	32.00	88.00	24.00	120.00	M16	14.00	60.00	50	M24	6.90
BT50 SEM40X70 A-IT	40.00	98.00	27.00	70.00	M20	16.00	71.00	50	M24	5.30
BT50 SEM40X120 A-IT	40.00	98.00	27.00	120.00	M20	16.00	71.00	50	M24	7.10

BT MAS

BT-FM IT

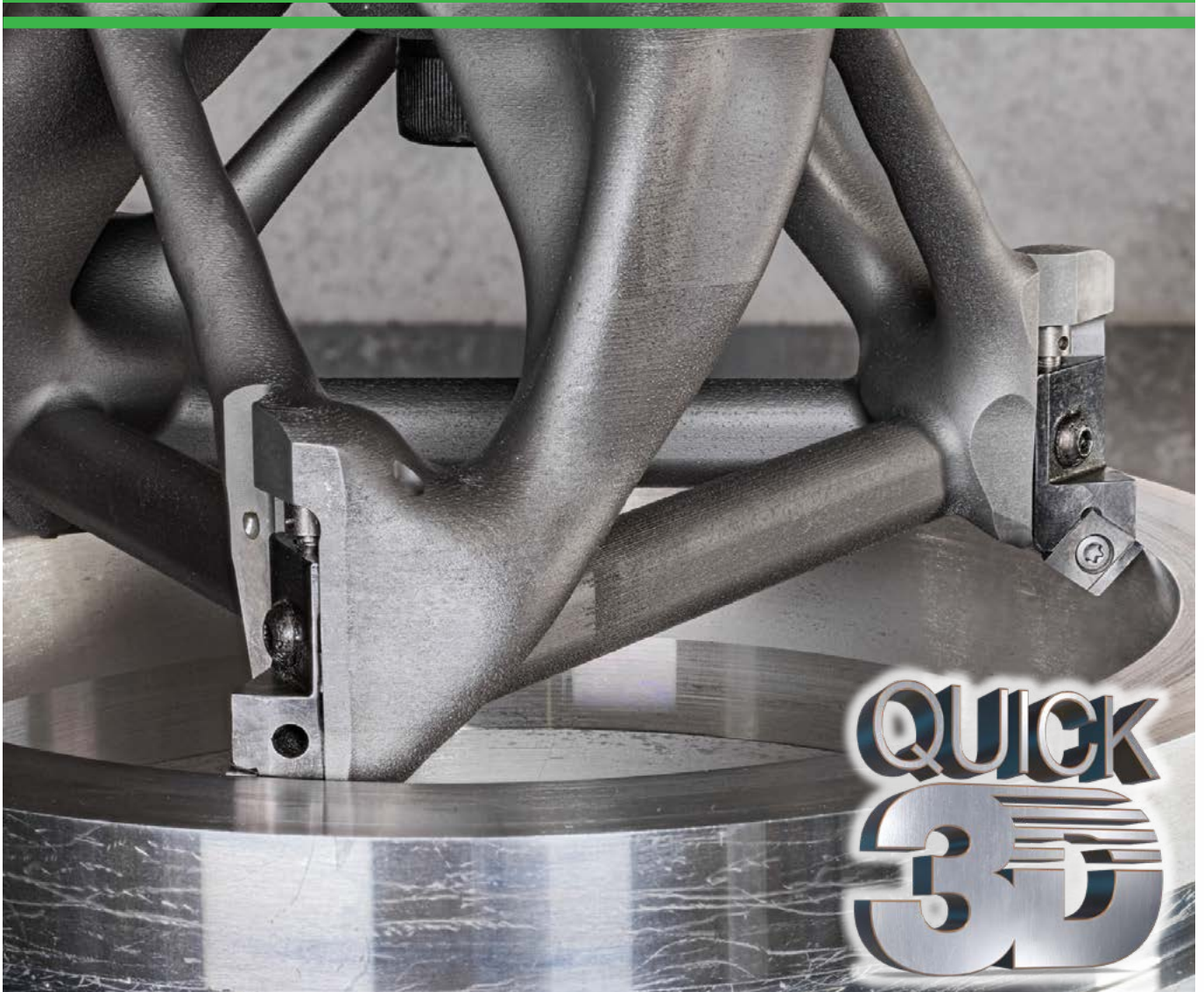
Shell Mill Holders with BT MAS-403 A/B Tapered Shanks for High-Speed Machining with IT.TE.DI. Tools



Designation	DCONWS	BD	LSCWS	LF	THID	DAH	DBC	DBC_2	SS	CRKS	kg
BT50 FM40X60 C-IT	40.00	98.00	27.00	60.00	M12	16.00	71.00	66.70	40	M16	2.50
BT50 FM40X70 C-IT	40.00	98.00	27.00	70.00	M12	16.00	71.00	66.70	50	M24	5.30
BT50 FM60X70 C-IT	60.00	140.00	40.00	70.00	M16	16.00	101.60	101.60	50	M24	7.10



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