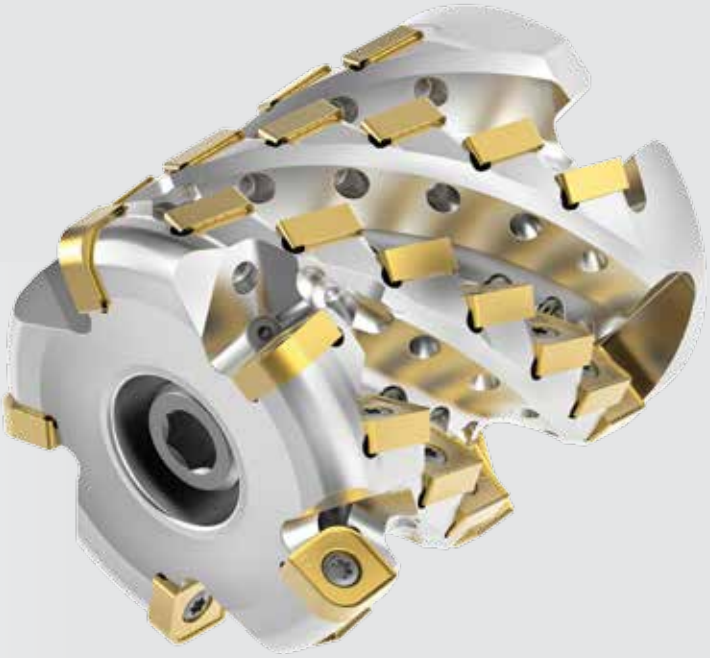
POWERED BY NOVO

HARVI™ Ultra 8X

with Flange Mount Adapters



Materials

P M S

Applications

- Shoulder Milling
- Shoulder/Slot Milling
- Chamfer Milling
- Pocketing
- Profile Milling

Up to 8 cutting edges per insert. That's helical milling at the lowest possible cost-per-edge.

HARVI Ultra 8X helical milling cutters are designed to deliver the highest metal removal rates (MRR), especially in high-temperature alloys.

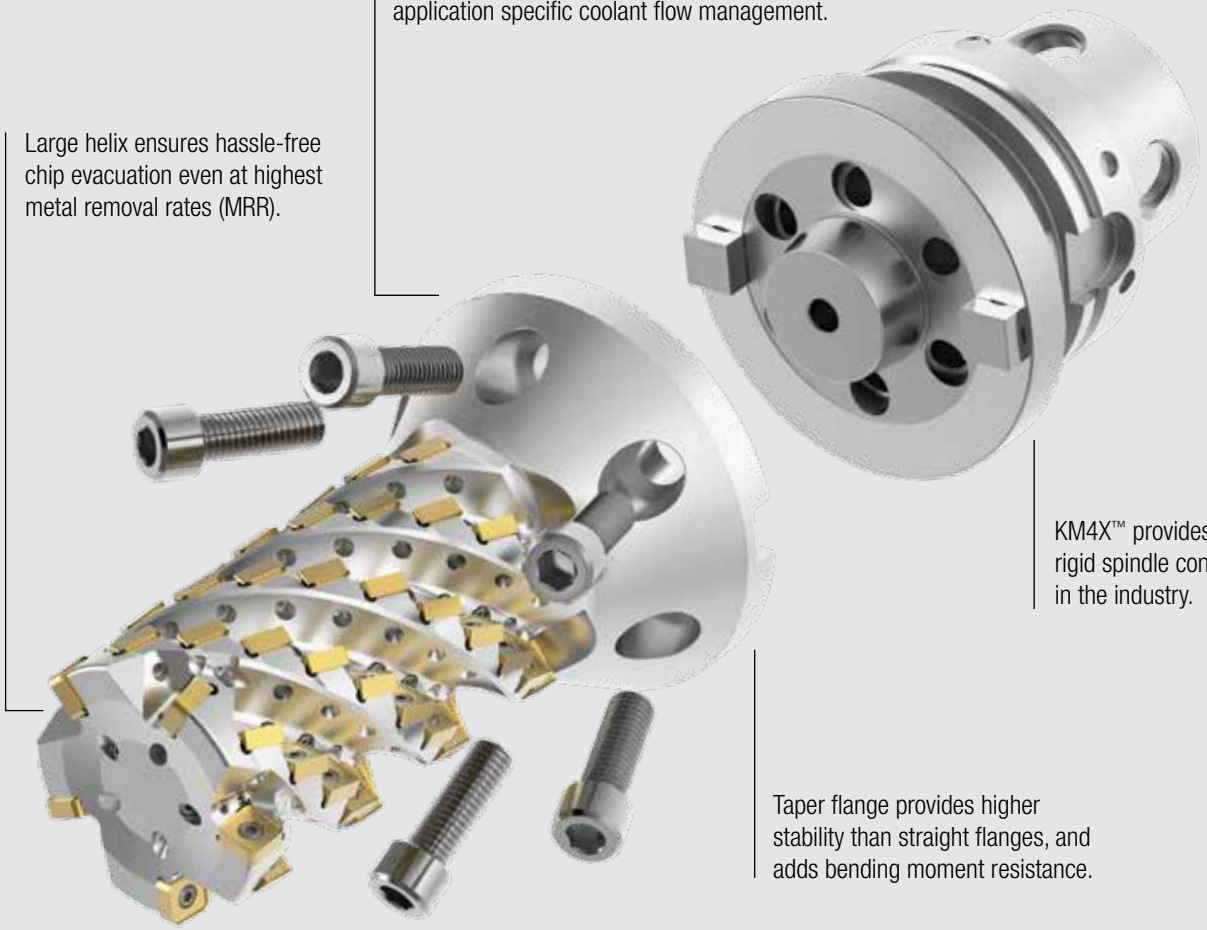
Lead inserts in various corner radii available, matching the needs of the aerospace industry.

HARVI Ultra 8x Taper Flange Adapters achieve maximum tool stiffness and maximum tool life.

Ideal for machines specifically designed to produce airframe structural parts.

Adjustable coolant nozzles support chip evacuation and control heat in the cutting zone, allowing application specific coolant flow management.

Large helix ensures hassle-free chip evacuation even at highest metal removal rates (MRR).

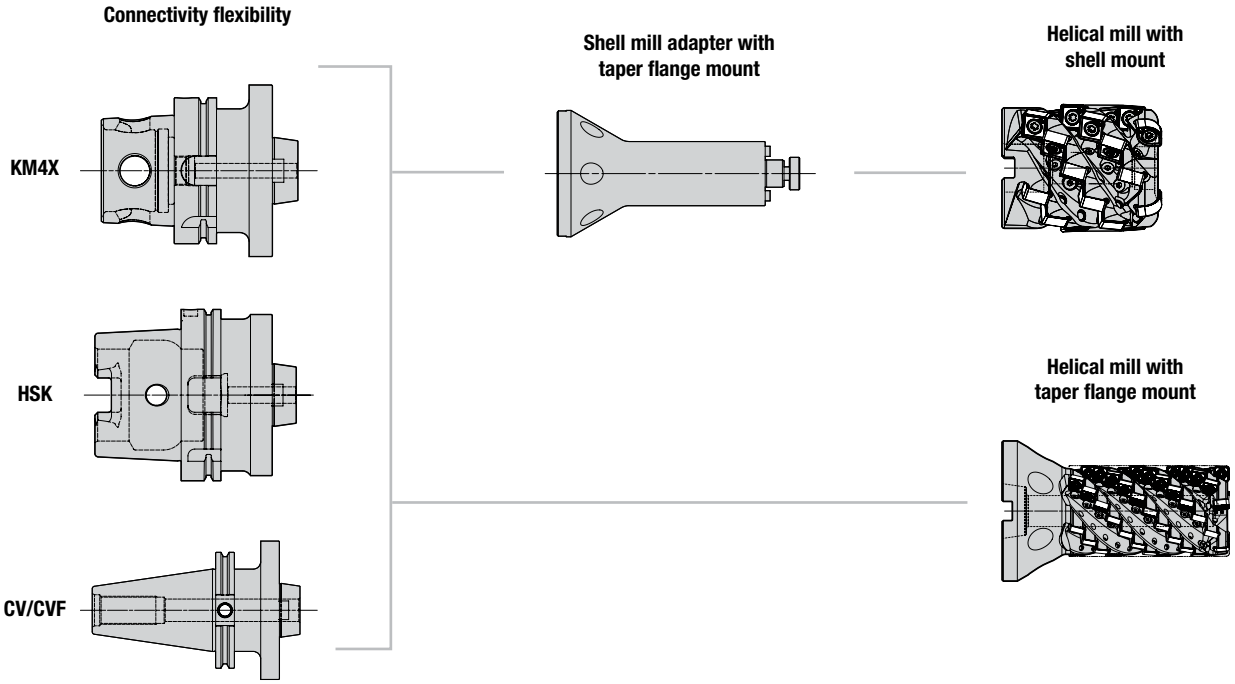


KM4X™ provides most rigid spindle connection in the industry.

Taper flange provides higher stability than straight flanges, and adds bending moment resistance.

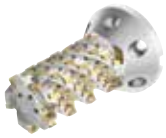
HARVI™ Ultra 8X cutters with different lead row pocket designs available. Especially for applications that require larger corner radii.

Connectivity flexibility



Shoulder Milling

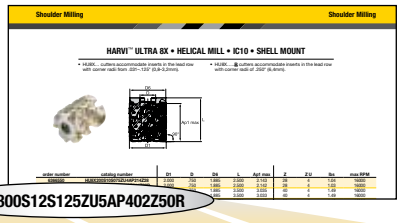
HARVI™ ULTRA 8X • TOOL SELECTION GUIDE

	HARVI Ultra 8X			
	SHELL MOUNT		TAPER FLANGE MOUNT	
				
Page	94, 98		95, 98	
Main operation				
Cutter diameter [D1]	2–3"		2–3"	
Maximum cutting depth [Ap1 max]	2.0–4.2"		4.2–9.3"	
Insert size IC	10 & 12mm		10 & 12mm	
Number of inserts per cutter [Z]	15–60		56–115	
Number of flutes per cutter [ZU]	3–6		4–6	
Internal coolant	✔		✔	
Additional operations				
Connection Style Machine Side (CSMS)				
Fits regular shell mill adapters	✔		—	
Pilot diameter flange mount extension	3/4–1-1/2"		—	
Flange mount size	BTF46		BTF46	
				
Cutting edges	8	4	8	4
Corner radius for 10mm inserts on 1st row	.031"	.062–.250"	.031"	.062–.250"
Corner radius for 10mm inserts after 1st row	.031"		.031"	
Corner radius for 12mm inserts on 1st row	.031–.094"	.125–.250"	.031–.094"	.125–.250"
Corner radius for 12mm inserts after 1st row	.031"		.031"	
Workpiece materials	P M S		P M S	

Shoulder Milling

HARVI™ ULTRA 8X • CATALOG NUMBERING SYSTEM • CUTTERS

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

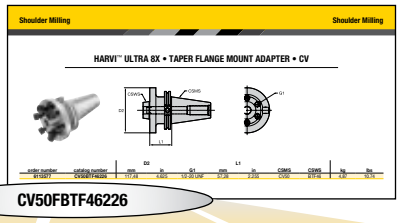


HU8X300S12S125ZU5AP402Z50R

HU8X	300	S12	S125	ZU5	AP402	Z50	R
HARVI Ultra 8X	Cutter Diameter	Insert Style and IC	Connection Style Machine Side (CSMS)	Number of Flutes	Maximum DoC	Number of Inserts	Large Radii
		S10 = IC10mm **S12** = IC12mm	**S** = Shell Mill **F** = Flange BTF46 *Back end or Monoblock supplied as custom solution: KM4X™, HSK, CV, DV, etc.				*Cutters with an 'R' at the end have a 1st row that accepts larger corner radii

TAPER FLANGE MOUNTING ADAPTERS • CATALOG NUMBERING SYSTEM

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



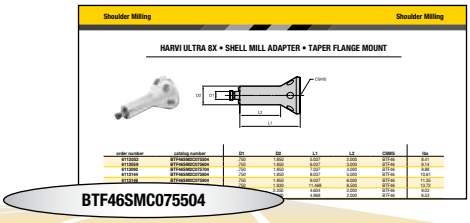
CV50FBTF46226

CV	50	F	BTF	46	226
Connection Style Machine Side (CSMS)	Connection Size	Special Feature	Connection Style Workpiece Side (CSWS)	Connection Size	Tool Length
CV = CAT Shank Style ANSI B5.50 **HSK** = HSK Shank Style DIN 69893-1 **KM4X**™ = KM4X Shank Style	**40** = 40 **50** = 50 **100** = 100 **125** = 125	**F** = Face Contact—Face Contact (Not Interchangeable with CVKV Tooling)	**BTF** = Bolt Taper Flange	**46** = 46mm	Gage Line of Toolholder

Shoulder Milling

SHELL MILL ADAPTERS • TAPER FLANGE MOUNT • CATALOG NUMBERING SYSTEM

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.

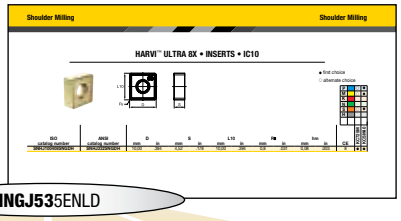


BTF	46	SMC	075	504
Connection Style Workpiece Side (CSWS)	Connection Size	Mounting Style	Pilot Size (D1)	Tool Length
BTF = Bolt Taper Flange	**46** = 46mm	**SMC** = Shell Mill Adapter with Coolant **SM2C** = Shell Mill Adapter with Coolant and Reduced D2 Dimension **SM3C** = Shell Mill Adapter with Coolant and Reduced D2 Dimension — Bolt-On Keys	**075** = .075" **100** = 1.00" **125** = 1.25" **150** = 1.50"	Gage Line of Adapter

Shoulder Milling

HARVI™ ULTRA 8X • CATALOG NUMBERING SYSTEM • INSERTS

Each character in our catalog number signifies a specific trait of that product. Use the following key columns and corresponding images to easily identify which attributes apply.



HNGJ535ENLD

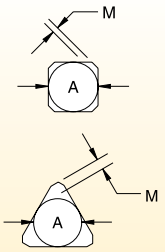
H — Insert Shape

A	Parallelogram 85°	
C	Rhomboid 80°	
E	75°	
H	Hexagon 120°	
L	Rectangular 90°	
O	Octagon 135°	
R	Round —	
S	Square 90°	
T	Triangular 60°	
X	Kennametal Standard Form	

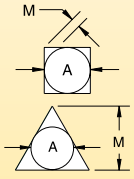
N — Insert Clearance Angle

A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°

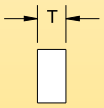
G — Tolerance Class



Indexable inserts with facets/wipers



Indexable inserts with corner radii



Insert thickness

J — Geometry and Clamping Type

5 — Size

A	symbol
1.000	8
.750	6
.625	5
.500	4
.375	3
.250	2

inscribed circle "A"

For shapes A, L, and X, see position #1; use length of leading cutting edge in increments of 1/4".

3 — Thickness

insert thickness

T	in 1/16"
.0938	1.5
.125	2
.1562	2.5
.1875	3
.2188	3.5
.2500	4
.3125	5

tolerance class	tolerance on "A"	tolerance on "M"	tolerance on "T"	tolerance class	tolerance on "A"	tolerance on "M"	tolerance on "T"
A	.001	.0002	.001	J	.002–.005*	.0002	.001
B	.001	.0002	.005	K	.002–.005*	.0005	.001
C	.001	.0005	.001	L	.002–.005*	.001	.001
D	.001	.0005	.005	M	.002–.005*	.003–.008*	.005
E	.001	.001	.001	N	.002–.005*	.003–.008*	.001
F	.0005	.0002	.001	P**	.0015	.0015	.0015
G	.001	.001	.005	U	.003–.010*	.005–.015*	.005
H	.0005	.0005	.001	—	—	—	—

*See table below for tolerances according to insert size and class.
**Kennametal standard only.

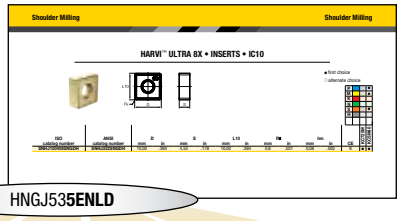
A	tolerances on "A"		tolerances on "M"	
	classes J, K, L, M, N	class U	classes M & N	class U
.1875–.3937	.002	.003	.003	.005
.4375–.5625	.003	.005	.005	.008
.5906–.8125	.004	.007	.006	.011
.8661–1.188	.005	.010	.007	.015
1.250–1.378	.006	.010	.008	.015

symbol	hole	shape of hole	chipbreaker	shape of insert's section
N	without		without	
R			single sided	
F			double sided	
A	with	cylindrical hole	without	
M			single sided	
G			double sided	
W		partly cylindrical hole, 40–60° countersink	without	
T			single sided	
Q		partly cylindrical hole, 40–60° double countersink	without	
U			double sided	
B		partly cylindrical hole, 70–90° countersink	without	
H			single sided	
C		partly cylindrical hole, 70–90° double countersink	without	
J			double sided	
X	special design			

Shoulder Milling

HARVI™ ULTRA 8X • CATALOG NUMBERING SYSTEM • INSERTS

(continued)



HNGJ535ENLD

5	E	N	–	L	D	
Corner Configuration	Cutting Edge Form	Insert Hand	Facet Width	Edge Prep Size	Rake Face Angle	Added Info

Cutting Edge Form

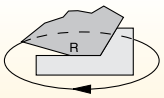
F Sharp

E Honed

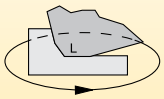
T T-land

S Honed T-land

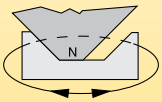
Insert Hand



direction of cutter rotation



direction of cutter rotation



direction of cutter rotation

Facet Width

.0312	2
.0469	3
.0625	4
.0938	6

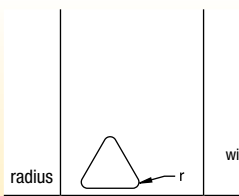
Facet width is number of 1/64" increments (1/32" for old styles).

Edge Prep Size

L = Light — sharp or lightly honed and/or T-land
G = General — medium hone and/or T-land
H = Heavy — large hone and/or T-land

Added Info

J = Polished rake face
P = Partial T-land
W = Wiper/radiused facet
H = Helical



radius	r
0	.004
0.5	.008
1	1/64
2	1/32
3	3/64
4	1/16
5	5/64
6	3/32
7	7/64
8	1/8

If letter is replaced by number(s), refer to table for radius "r".

lead angle K	
A	45°
D	handed 30°
K	neutral 30°
E	handed 15°
L	neutral 15°
P	0°

wiper edge clearance P	
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°

Rake Face Angle

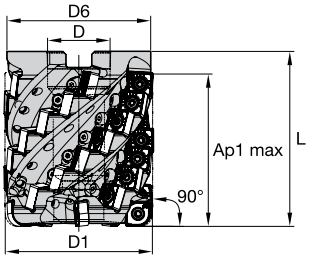
N	A	B	C	P	D	E	F	G
0° or less	3°	5°	7°	11°	15°	20°	25°	30°

Nominal or average angle of rake on insert face at leading cutting edge before edge prep and before installation.

Shoulder Milling

HARVI™ ULTRA 8X • HELICAL MILL • IC10 • SHELL MOUNT

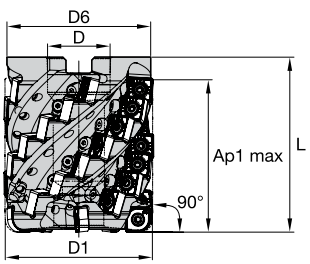
- HU8X… cutters accommodate inserts in the lead row with corner radii from .031–.125" (0,8–3,2mm).
- HU8X…..**R** cutters accommodate inserts in the lead row with corner radii of .250" (6,4mm).



order number	catalog number	D1	D	D6	L	Ap1 max	Z	Z U	lbs	max RPM
6366550	HU8X200S10S075ZU4AP214Z28	2.000	.750	1.885	2.500	2.143	28	4	1.04	16000
6366561	HU8X200S10S075ZU4AP214Z28R	2.000	.750	1.885	2.500	2.142	28	4	1.03	16000
6366565	HU8X200S10S075ZU4AP303Z40	2.000	.750	1.885	3.500	3.035	40	4	1.49	16000
6366566	HU8X200S10S075ZU4AP303Z40R	2.000	.750	1.885	3.500	3.033	40	4	1.49	16000
6456649	HU8X200S10S100ZU4AP214Z28	2.000	1.000	1.885	2.750	2.143	28	4	1.19	16000
6456650	HU8X200S10S100ZU4AP214Z28R	2.000	1.000	1.885	2.750	2.143	28	4	1.19	16000
6521667	HU8X250S10S100ZU5AP308Z50	2.500	1.000	2.188	3.750	3.084	50	5	2.78	14240
6456642	HU8X300S10S125ZU6AP308Z60	3.000	1.250	2.875	4.000	3.085	60	6	4.78	13000
6456641	HU8X300S10S125ZU6AP308Z60R	3.000	1.250	2.875	4.000	3.085	60	6	4.79	13000
6456647	HU8X300S10S125ZU6AP400Z84	3.000	1.250	2.889	5.000	4.236	84	6	4.79	13000
6457057	HU8X300S10S125ZU6AP400Z84R	3.000	1.250	2.889	5.000	4.236	84	6	4.79	13000

HARVI ULTRA 8X • HELICAL MILL • IC10 • LEAD ROW ONLY • SHELL MOUNT

- HU8X…..**R48** cutters accommodate inserts in the lead row with corner radii of .189" (4,8mm).

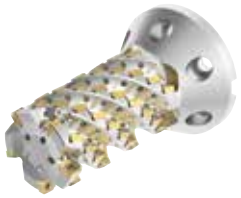


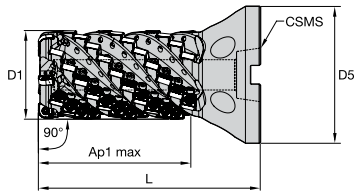
order number	catalog number	D1	D	D6	L	Ap1 max	Z	Z U	lbs	max RPM
6523595	HU8X200S10S075ZU4AP214Z28R48	2.000	.750	1.884	2.500	2.142	28	4	1.04	16000
6523596	HU8X200S10S075ZU4AP303Z40R48	2.000	.750	1.884	3.500	3.034	40	4	1.49	16000
6523598	HU8X300S10S125ZU6AP300Z60R48	3.000	1.250	2.875	4.000	3.085	60	6	4.80	13000
6523599	HU8X300S10S125ZU6AP400Z84R48	3.000	1.250	2.889	5.000	4.237	84	6	4.79	13000

Shoulder Milling

HARVI™ ULTRA 8X • HELICAL MILL • IC10 • TAPER FLANGE MOUNT

- HU8X… cutters accommodate inserts in the lead row with corner radii from .031–.125" (0,8–3,2mm).
- HU8X…..**R** cutters accommodate inserts in the lead row with corner radii of .250" (6,4mm).

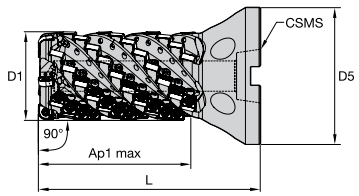




order number	catalog number	D1	D5	CSMS	L	Ap1 max	Z	Z U	lbs	max RPM
6366567	**HU8X200S10F462ZU4AP422Z56**	2.000	4.625	BTF46	7.500	4.224	56	4	8.40	16000
6366568	**HU8X200S10F462ZU4AP422Z56R**	2.000	4.625	BTF46	7.500	4.222	56	4	8.39	16000
6158972	**HU8X300S10F462ZU6AP520Z102**	3.000	4.625	BTF46	7.757	5.208	102	6	11.45	13000
6456648	**HU8X300S10F462ZU6AP520Z102R**	3.000	4.625	BTF46	7.757	5.208	102	6	11.44	13000

HARVI ULTRA 8X • HELICAL MILL • IC10 • LEAD ROW ONLY • TAPER FLANGE MOUNT

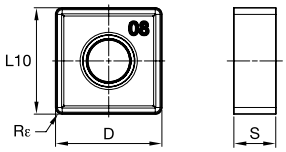
- HU8X…..**R48** cutters accommodate inserts in the lead row with corner radii of .189" (4,8mm).



order number	catalog number	D1	D5	CSMS	L	Ap1 max	Z	Z U	lbs	max RPM
6523597	**HU8X200S10F462ZU4AP422Z56R48**	2.000	4.625	BTF46	7.500	4.223	56	4	8.39	16000
6523600	**HU8X300S10F462ZU6AP520Z102R48**	3.000	4.625	BTF46	7.757	5.208	102	6	11.44	13000

Shoulder Milling

HARVI™ ULTRA 8X • INSERTS • IC10

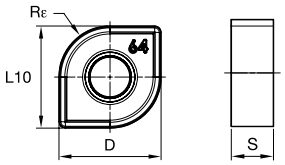


● first choice
○ alternate choice

P	○	●
M	○	●
K		
N		
S	○	●
H		

ISO catalog number	ANSI catalog number	D mm	D in	S mm	S in	L10 mm	L10 in	Rε mm	Rε in	hm mm	hm in	CE	KC725M	KCSM40
SNHJ100408SNGDH	SNHJ332SNGDH	10,00	.394	4,52	.178	10,00	.394	0,8	.031	0,08	.003	8	●	●

HARVI ULTRA 8X • INSERTS • IC10 • LEAD ROW ONLY



P	○	●
M	○	●
K		
N		
S	○	●
H		

ISO catalog number	ANSI catalog number	D mm	D in	S mm	S in	L10 mm	L10 in	Rε mm	Rε in	hm mm	hm in	CE	KC725M	KCSM40
SNHJ100416SNGDH	SNHJ334SNGDH	10,00	.394	4,52	.178	10,00	.394	1,6	.062	0,08	.003	4	–	●
SNHJ100424SNGDH	SNHJ336SNGDH	10,00	.394	4,52	.178	10,00	.394	2,4	.094	0,08	.003	4	–	●
SNHJ100432SNGDH	SNHJ338SNGDH	10,00	.394	4,52	.178	10,00	.394	3,2	.125	0,08	.003	4	–	●
SNHJ100448SNGDH	SNHJ3312SNGDH	10,00	.394	4,52	.178	10,00	.394	4,8	.188	0,08	.003	4	–	●
SNHJ100464SNGDH	SNHJ3316SNGDH	10,00	.394	4,52	.178	10,00	.394	6,4	.250	0,08	.003	4	●	●

Shoulder Milling

HARVI™ ULTRA 8X • INSERT SELECTION GUIDE • IC10

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		◄——►		toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	–	–	**–**	**–**	–	–
P3–P4	–	–	**–**	**–**	–	–
P5–P6	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
M1–M2	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
M3	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
K1–K2	–	–	**–**	**–**	–	–
K3	–	–	**–**	**–**	–	–
N1–N2	–	–	**–**	**–**	–	–
N3	–	–	**–**	**–**	–	–
S1–S2	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
S3	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
S4	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
H1	–	–	**–**	**–**	–	–

HARVI ULTRA 8X • RECOMMENDED STARTING FEEDS [IPT] • IC10

Light Machining	General Purpose	Heavy Machining

Material	Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
		5%			10%			20%			30%			40–100%			
P5	.S..GDH	–	–	–	.007	**.010**	.016	.006	**.009**	.014	.005	**.007**	.012	.003	**.004**	.006	.S..GDH
P6	.S..GDH	–	–	–	.007	**.008**	.013	.006	**.007**	.011	.005	**.006**	.009	.003	**.003**	.005	.S..GDH
M1	.S..GDH	–	–	–	.007	**.010**	.015	.006	**.009**	.013	.005	**.007**	.011	.003	**.004**	.006	.S..GDH
M2	.S..GDH	–	–	–	.007	**.010**	.015	.006	**.009**	.013	.005	**.007**	.011	.003	**.004**	.006	.S..GDH
M3	.S..GDH	–	–	–	.007	**.008**	.013	.006	**.007**	.011	.005	**.006**	.009	.003	**.003**	.005	.S..GDH
S1	.S..GDH	–	–	–	.007	**.006**	.010	.006	**.006**	.009	.005	**.005**	.007	.003	**.003**	.004	.S..GDH
S2	.S..GDH	–	–	–	.007	**.006**	.010	.006	**.006**	.009	.005	**.005**	.007	.003	**.003**	.004	.S..GDH
S3	.S..GDH	–	–	–	.007	**.008**	.013	.006	**.007**	.011	.005	**.006**	.009	.003	**.003**	.005	.S..GDH
S4	.S..GDH	–	–	–	.007	**.010**	.015	.006	**.009**	.013	.005	**.007**	.011	.003	**.004**	.006	.S..GDH

NOTE: Use “General Purpose” values as starting feed rate (ae = radial depth of cut, Dc = cutting diameter).

HARVI ULTRA 8X • RECOMMENDED STARTING SPEEDS [SFM] • IC10

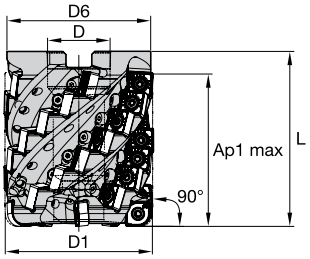
Material Group		KC725M			KCSM40		
P	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–
	5	390	**355**	315	820	**450**	410
	6	340	**265**	210	740	**415**	375
M	1	450	**390**	355	885	**415**	375
	2	410	**340**	290	885	**415**	375
	3	300	**265**	210	655	**290**	260
K	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–
N	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–
S	1	90	**80**	65	195	**90**	75
	2	90	**80**	65	165	**90**	70
	3	120	**90**	65	180	**105**	80
	4	145	**120**	80	260	**150**	115
H	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
Do not exceed max RPM. Reduce speed if necessary.

Shoulder Milling

HARVI™ ULTRA 8X • HELICAL MILL • IC12 • SHELL MOUNT

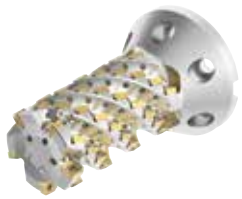
- HU8X… cutters accommodate inserts in the lead row with corner radii from .031–.125" (0,8–3,2mm).
- HU8X…..**R** cutters accommodate inserts in the lead row with corner radii from .189–.250" (4,8–6,4mm).

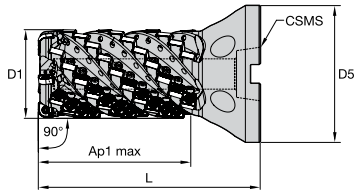


order number	catalog number	D1	D	D6	L	Ap1 max	Z	Z U	lbs	max RPM
6518761	HU8X200S12S075ZU3AP200Z15	2.000	.750	1.750	3.000	2.003	15	3	1.29	16290
6521701	HU8X250S12S100ZU4AP240Z24	2.500	1.000	2.441	3.500	2.402	24	4	2.73	14570
6521702	HU8X250S12S100ZU4AP400Z40	2.500	1.000	2.441	5.000	4.001	40	4	3.56	14570
6366487	HU8X300S12S125ZU5AP305Z40	3.000	1.250	2.876	3.500	3.053	40	5	3.58	13300
6366488	HU8X300S12S125ZU5AP305Z40R	3.000	1.250	2.875	3.500	3.052	40	5	3.26	13300
6366489	HU8X300S12S125ZU5AP402Z50	3.000	1.250	2.859	4.500	4.024	50	5	5.47	13300
6366490	HU8X300S12S125ZU5AP402Z50R	3.000	1.250	2.875	4.500	4.023	50	5	4.65	13300

HARVI ULTRA 8X • HELICAL MILL • IC12 • TAPER FLANGE MOUNT

- HU8X… cutters accommodate inserts in the lead row with corner radii from .031–.125" (0,8–3,2mm).
- HU8X…..**R** cutters accommodate inserts in the lead row with corner radii from .189–.250" (4,8–6,4mm).

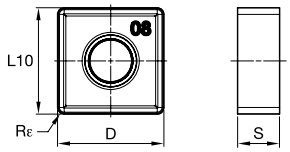




order number	catalog number	D1	D5	CSMS	L	Ap1 max	Z	Z U	lbs	max RPM
6366541	HU8X300S12F462ZU5AP526Z65	3.000	4.625	BTF46	7.500	5.262	65	5	10.52	13300
6366543	HU8X300S12F462ZU5AP526Z65R	3.000	4.625	BTF46	7.500	5.294	65	5	10.63	13300
6366544	HU8X300S12F462ZU5AP728Z90	3.000	4.625	BTF46	9.500	7.278	90	5	14.25	13300
6366545	HU8X300S12F462ZU5AP728Z90R	3.000	4.625	BTF46	9.500	7.278	90	5	12.34	13300
6366547	HU8X300S12F462ZU5AP929Z115	3.000	4.625	BTF46	11.500	9.294	115	5	14.13	13300
6366548	HU8X300S12F462ZU5AP929Z115R	3.000	4.625	BTF46	11.500	9.294	115	5	14.13	13300

Shoulder Milling

HARVI™ ULTRA 8X • INSERTS • IC12

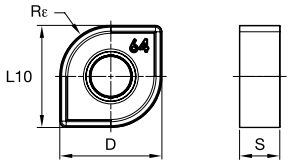


● first choice
○ alternate choice

P	○	●
M	○	●
K		
N		
S	○	●
H		

ISO catalog number	ANSI catalog number	D mm	D in	S mm	S in	L10 mm	L10 in	Rε mm	Rε in	hm mm	hm in	CE	KC725M	KCSM40
SNHJ120608SNGDH	**SNHJ442SNGDH**	12,70	.500	4,52	.178	12,70	.500	0,8	.031	0,08	.003	8	●	●

HARVI ULTRA 8X • INSERTS • IC12 • LEAD ROW ONLY



P	○	●
M	○	●
K		
N		
S	○	●
H		

ISO catalog number	ANSI catalog number	D mm	D in	S mm	S in	L10 mm	L10 in	Rε mm	Rε in	hm mm	hm in	CE	KC725M	KCSM40
SNHJ120616SNGDH	**SNHJ444SNGDH**	12,70	.500	4,52	.178	12,70	.500	1,6	.062	0,08	.003	8	–	●
SNHJ120624SNGDH	**SNHJ446SNGDH**	12,70	.500	4,52	.178	12,70	.500	2,4	.094	0,08	.003	8	–	●
SNHJ120632SNGDH	**SNHJ448SNGDH**	12,70	.500	4,52	.178	12,70	.500	3,2	.125	0,08	.003	4	–	●
***SNHJ120640SNGDH**	***SNHJ120640SNGDH**	12,70	.500	4,52	.178	12,70	.500	4,0	.158	0,08	.003	4	–	●
SNHJ120648SNGDH	**SNHJ4412SNGDH**	12,70	.500	4,52	.178	12,70	.500	4,8	.188	0,08	.003	4	–	●
SNHJ120660SNGDH	**SNHJ120660SNGDH**	12,70	.500	4,52	.178	12,70	.500	6,0	.236	0,08	.003	4	–	●
SNHJ120664SNGDH	**SNHJ4416SNGDH**	12,70	.500	4,52	.178	12,70	.500	6,4	.250	0,08	.003	4	●	●

*SNHJ120640SNGDH requires modification of the cutter body.

Shoulder Milling

HARVI™ ULTRA 8X • INSERT SELECTION GUIDE • IC12

Material Group	Light Machining (Light geometry)		General Purpose		Heavy Machining (Strong geometry)	
	wear resistance		◄——►		toughness	
	Geometry	Grade	Geometry	Grade	Geometry	Grade
P1–P2	–	–	**–**	**–**	–	–
P3–P4	–	–	**–**	**–**	–	–
P5–P6	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
M1–M2	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
M3	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
K1–K2	–	–	**–**	**–**	–	–
K3	–	–	**–**	**–**	–	–
N1–N2	–	–	**–**	**–**	–	–
N3	–	–	**–**	**–**	–	–
S1–S2	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
S3	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
S4	.S..GDH	KCSM40	**.S..GDH**	**KCSM40**	.S..GDH	KCSM40
H1	–	–	**–**	**–**	–	–

HARVI ULTRA 8X • RECOMMENDED STARTING FEEDS [IPT] • IC12

Light Machining	General Purpose	Heavy Machining

Material	Insert Geometry	Recommended Starting Feed per Tooth (Fz) in Relation to % of Radial Engagement (ae)															Insert Geometry
		5%			10%			20%			30%			40–100%			
P5	.S..GDH	–	–	–	.007	**.012**	.018	.006	**.010**	.016	.005	**.008**	.013	.003	**.005**	.007	.S..GDH
P6	.S..GDH	–	–	–	.007	**.010**	.015	.006	**.009**	.013	.005	**.007**	.011	.003	**.004**	.006	.S..GDH
M1	.S..GDH	–	–	–	.007	**.011**	.017	.006	**.010**	.015	.005	**.008**	.012	.003	**.004**	.007	.S..GDH
M2	.S..GDH	–	–	–	.007	**.011**	.017	.006	**.010**	.015	.005	**.008**	.012	.003	**.004**	.007	.S..GDH
M3	.S..GDH	–	–	–	.007	**.010**	.015	.006	**.009**	.013	.005	**.007**	.011	.003	**.004**	.006	.S..GDH
S1	.S..GDH	–	–	–	.007	**.008**	.012	.006	**.007**	.011	.005	**.006**	.009	.003	**.003**	.005	.S..GDH
S2	.S..GDH	–	–	–	.007	**.008**	.012	.006	**.007**	.011	.005	**.006**	.009	.003	**.003**	.005	.S..GDH
S3	.S..GDH	–	–	–	.007	**.009**	.014	.006	**.008**	.012	.005	**.007**	.010	.003	**.004**	.006	.S..GDH
S4	.S..GDH	–	–	–	.007	**.011**	.017	.006	**.010**	.015	.005	**.008**	.012	.003	**.004**	.007	.S..GDH

NOTE: Use “General Purpose” values as starting feed rate (ae = radial depth of cut, Dc = cutting diameter).

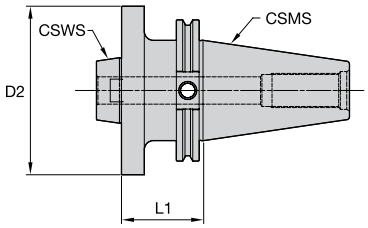
HARVI ULTRA 8X • RECOMMENDED STARTING SPEEDS [SFM] • IC12

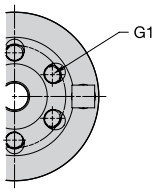
Material Group		KC725M			KCSM40		
P	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–
	4	–	**–**	–	–	**–**	–
	5	390	**355**	315	820	**450**	410
	6	340	**265**	210	740	**415**	375
M	1	450	**390**	355	885	**415**	375
	2	410	**340**	290	885	**415**	375
	3	300	**265**	210	655	**290**	260
K	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–
N	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–
S	1	90	**80**	65	195	**90**	75
	2	90	**80**	65	165	**90**	70
	3	120	**90**	65	180	**105**	80
	4	145	**120**	80	260	**150**	115
H	1	–	**–**	–	–	**–**	–
	2	–	**–**	–	–	**–**	–
	3	–	**–**	–	–	**–**	–

NOTE: FIRST choice starting speeds are in **bold** type.
Do not exceed max RPM. Reduce speed if necessary.

Shoulder Milling

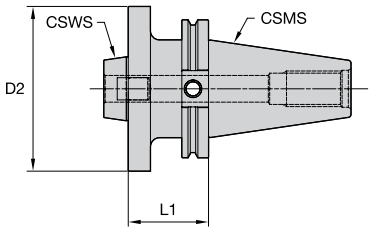
HARVI™ ULTRA 8X • TAPER FLANGE MOUNT ADAPTER • CV

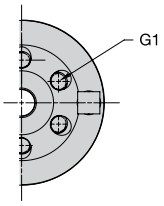




		D2			L1					
order number	catalog number	mm	in	G1	mm	in	CSMS	CSWS	kg	lbs
6113577	CV50BTF46226	117,48	4.625	1/2-20 UNF	57,28	2.255	CV50	BTF46	4,87	10.74

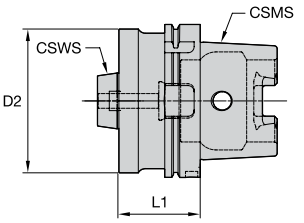
HARVI ULTRA 8X • TAPER FLANGE MOUNT ADAPTER • CVF

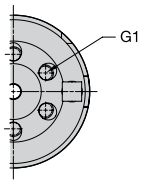




		D2			L1					
order number	catalog number	mm	in	G1	mm	in	CSMS	CSWS	kg	lbs
6113578	CV50FBTF46226	117,48	4.625	1/2-20 UNF	57,28	2.255	CV50F	BTF46	4,95	10.90
5996208	CV60FBTF46245	117,48	4.625	1/2-20 UNF	62,25	2.451	CV60F	BTF46	13,56	29.91

HARVI ULTRA 8X • TAPER FLANGE MOUNT ADAPTER • HSK A

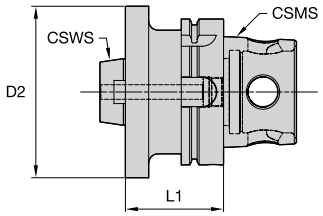


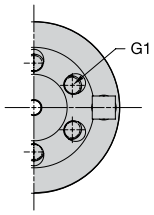


		D2			L1					
order number	catalog number	mm	in	G1	mm	in	CSMS	CSWS	kg	lbs
6113478	HSK125ABTF46262	117,48	4.625	1/2-20 UNF	66,43	2.615	HSK125A	BTF46	6,65	14.67
6113477	HSK100ABTF46265	117,48	4.625	1/2-20 UNF	67,24	2.647	HSK100A	BTF46	4,81	10.61

Shoulder Milling

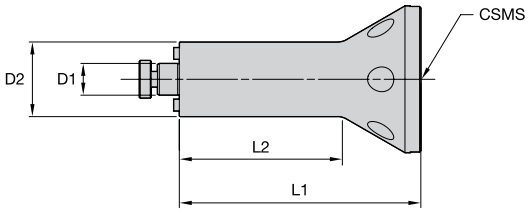
HARVI™ ULTRA 8X • TAPER FLANGE MOUNT ADAPTER • KM4X™





		D2			L1					
order number	catalog number	mm	in	G1	mm	in	CSMS	CSWS	kg	lbs
6285330	KM4X100BTF46265	117,48	4.625	1/2-20 UNF	67,24	2.647	KM4X100	BTF46	5,02	11.06

HARVI ULTRA 8X • SHELL MILL ADAPTER • TAPER FLANGE MOUNT



order number	catalog number	D1	D2	L1	L2	CSMS	lbs
6113053	BTF46SM2C075504	.750	1.850	5.037	2.000	BTF46	8.41
6113059	BTF46SM2C075604	.750	1.850	6.037	3.000	BTF46	9.14
6113092	BTF46SM2C075704	.750	1.850	7.037	4.000	BTF46	9.88
6113144	BTF46SM2C075804	.750	1.850	8.037	5.000	BTF46	10.61
6113146	BTF46SM2C075904	.750	1.850	9.037	6.000	BTF46	11.35
6289284	BTF46SMC0751147	.750	1.930	11.468	8.500	BTF46	13.72
6113150	BTF46SMC100460	1.000	2.350	4.604	2.000	BTF46	9.03
6153013	BTF46SM3C100497	1.000	1.930	4.968	2.000	BTF46	8.53
6113221	BTF46SMC100560	1.000	2.350	5.604	3.000	BTF46	10.21
6153015	BTF46SM3C100597	1.000	1.930	5.968	3.000	BTF46	9.31
6113223	BTF46SMC100660	1.000	2.350	6.604	4.000	BTF46	11.39
6153019	BTF46SM3C100697	1.000	1.930	6.968	4.000	BTF46	10.10
6113226	BTF46SMC100760	1.000	2.350	7.604	5.000	BTF46	12.57
6153020	BTF46SM3C100797	1.000	1.930	7.968	5.000	BTF46	10.88
6113227	BTF46SMC100860	1.000	2.350	8.604	6.000	BTF46	13.75
6153072	BTF46SM3C100897	1.000	1.930	8.968	6.000	BTF46	11.66
6101579	BTF46SM3C1001047	1.000	1.930	10.468	7.500	BTF46	12.82
6113228	BTF46SMC125426	1.250	2.750	4.258	2.000	BTF46	9.65
6113300	BTF46SMC125526	1.250	2.750	5.258	3.000	BTF46	11.26
6113332	BTF46SMC125626	1.250	2.750	6.258	4.000	BTF46	12.87
6113333	BTF46SMC125726	1.250	2.750	7.258	5.000	BTF46	14.47
6113334	BTF46SMC125826	1.250	2.750	8.258	6.000	BTF46	16.08
6113335	BTF46SMC150334	1.500	3.813	3.337	2.000	BTF46	10.94
6113385	BTF46SMC150434	1.500	3.813	4.337	3.000	BTF46	14.06
6113386	BTF46SMC150534	1.500	3.813	5.337	4.000	BTF46	17.19
6113387	BTF46SMC150634	1.500	3.813	6.337	5.000	BTF46	20.31
6113388	BTF46SMC150734	1.500	3.813	7.337	6.000	BTF46	23.44