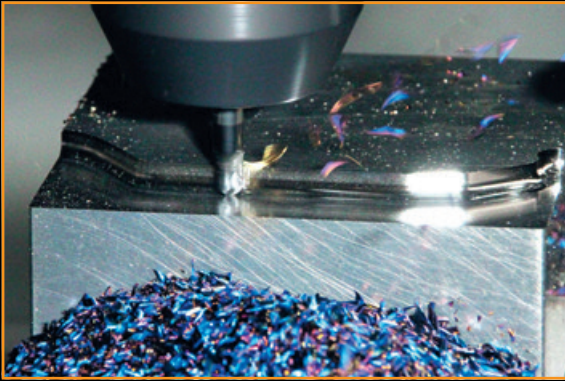


HUFSCHMIED  
ONE CUT AHEAD.

HUFSCHMIED  
ZERSPANUNGSSYSTEME



HIGH-PERFORMANCE  
**TOOLS**  
FOR HARDENED  
**STEEL,**  
PM STEEL, HSS  
**UP TO 72HRC**



*HARD-LINE*

# New product line in the processing range up to 72 HRC

For some time now, Hufschmied has had a tool range for hard machining in its portfolio. We now have decided to expand this product line to include a processing range of up to 72 HRC. Our objective: an optimum tool life, optimum surfaces at the tool face and thus at the work piece. And optimum fine-tuning of geometry, hard metal and coating for steels of up to 72 HRC.

Target groups are end users in the manufacturing of tools, moulds, and machines, plant and fixtures design. Currently available from our standard product range:

- Ball nose cutters from Ø 0.3 mm to Ø 12 mm with the number of cutting edges ranging from 2F to 9F
- Torus cutters from Ø 0.3 mm to Ø 12 mm with the number of cutting edges ranging from 2F to 5F and corner radii from 0.2 mm to 2.0 mm
- High-feed milling cutters from Ø 2 mm to 12 mm with the number of cutting edges ranging from 4F to 6F and CAM-R from 0.21 to 1.385

Hufschmied manufactures process-optimised tools in state-of-the-art manufacturing facilities and safeguards their quality by using high-end measuring machines of the latest generation.

**Hufschmied. One cut ahead.**

FORM	TOOL
HC633MUT	Mini-Ball end mill 3F for hardened steel up to 72 HRC
HC632	HSC-Ball end mill 2F for hardened steel up to 72 HRC
HC634	HSC-Ball end mill 4F for hardened steel up to 72 HRC
HC635	HSC-Ball end mill 5F for hardened steel up to 72 HRC
HC643MUT	Mini-Toric end mill 3F for hardened steel up to 72 HRC
HC643	HSC-Toric end mill 3F for hardened steel up to 72 HRC
HC644	HSC-Toric end mill 4F for hardened steel up to 72 HRC
HC645	HSC-Toric end mill 5F for hardened steel up to 72 HRC
HHF667	HSC-Ball end mill 5F/9F for hardened steel up to 72 HRC
HHF646	Highfeed end mill 4F/6F for hardened steel up to 72 HRC

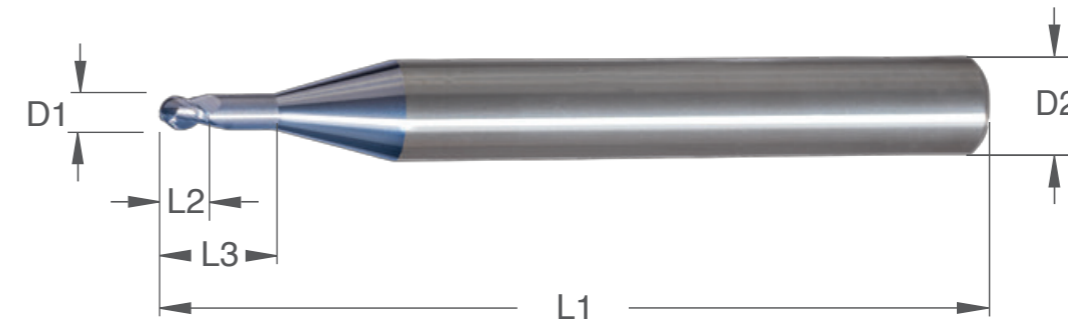
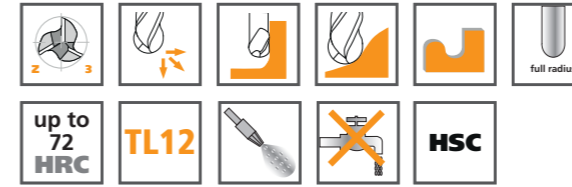
**HUFSCHMIED**  
**Zerspanungssysteme GmbH**  
 Ralph R. Hufschmied Managing Director  
 Edisonstraße 11 d  
 D-86399 Bobingen, Germany  
 Phone: +49 82 34/96 64-0  
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10 / 2019

Mini-Ball end mill 3F  
for hardened steel up to 72 HRC

HC633MUT



HARD-LINE

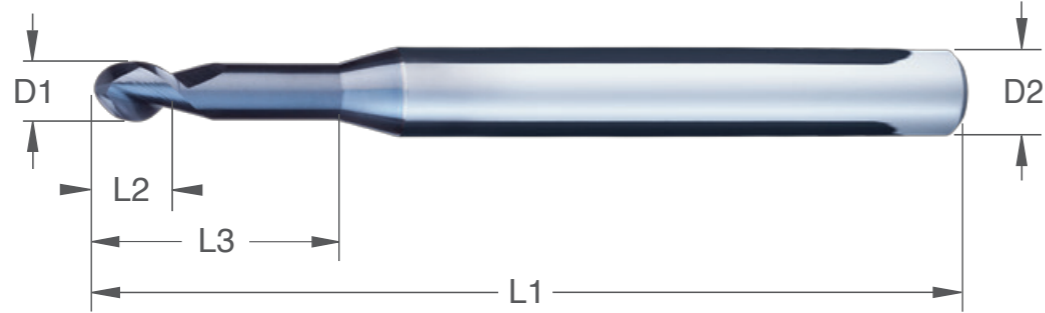
ORDER NUMBER	D1 mm -0,006 -0,015	D2h6 mm h6	L2 mm +0,5	L1 mm +2	L3 mm +1	F mm +0,1	ER mm +-0,005
0,3 HC633MUT003-010	0,3	6	0,3	50	1	0,02	0,15
HC633MUT003-015	0,3	6	0,3	50	1,5	0,02	0,15
HC633MUT003-024	0,3	6	0,3	50	2,4	0,02	0,15
HC633MUT003-036	0,3	6	0,3	50	3,6	0,02	0,15
0,4 HC633MUT004-012	0,4	6	0,4	50	1,2	0,02	0,2
HC633MUT004-020	0,4	6	0,4	50	2	0,02	0,2
HC633MUT004-032	0,4	6	0,4	50	3,2	0,02	0,2
HC633MUT004-048	0,4	6	0,4	50	4,8	0,02	0,2
0,5 HC633MUT005-015	0,5	6	0,5	50	1,5	0,02	0,25
HC633MUT005-025	0,5	6	0,5	50	2,5	0,02	0,25
HC633MUT005-040	0,5	6	0,5	50	4	0,02	0,25
HC633MUT005-050	0,5	6	0,5	50	5	0,02	0,25
0,6 HC633MUT006-018	0,6	6	0,6	50	1,8	0,02	0,3
HC633MUT006-030	0,6	6	0,6	50	3	0,02	0,3
HC633MUT006-045	0,6	6	0,6	50	4,5	0,02	0,3
HC633MUT006-060	0,6	6	0,6	50	6	0,02	0,3
0,8 HC633MUT008-024	0,8	6	0,8	50	2,4	0,02	0,4
HC633MUT008-040	0,8	6	0,8	50	4	0,02	0,4
HC633MUT008-065	0,8	6	0,8	50	6,5	0,02	0,4
HC633MUT008-080	0,8	6	0,8	50	8	0,02	0,4
1,0 HC633MUT010-030	1,0	6	1,0	50	3	0,02	0,5
HC633MUT010-050	1,0	6	1,0	50	5	0,02	0,5
HC633MUT010-080	1,0	6	1,0	50	8	0,02	0,5
HC633MUT010-100	1,0	6	1,0	50	10	0,02	0,5
1,2 HC633MUT012-035	1,2	6	1,2	50	3,5	0,02	0,6
HC633MUT012-060	1,2	6	1,2	50	6	0,02	0,6
HC633MUT012-095	1,2	6	1,2	50	9,5	0,02	0,6
HC633MUT012-120	1,2	6	1,2	50	12	0,02	0,6
1,5 HC633MUT015-045	1,5	6	1,5	50	4,5	0,02	0,75
HC633MUT015-075	1,5	6	1,5	50	7,5	0,02	0,75
HC633MUT015-120	1,5	6	1,5	50	12	0,02	0,75
HC633MUT015-150	1,5	6	1,5	50	15	0,02	0,75
2,0 HC633MUT020-060	2,0	6	2,0	50	6	0,02	1
HC633MUT020-100	2,0	6	2,0	50	10	0,02	1
HC633MUT020-160	2,0	6	2,0	50	16	0,02	1
HC633MUT020-200	2,0	6	2,0	50	20	0,02	1

diameter range:  
0,3 to 2 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2312

PM steel  
HSS

HSC-Ball end mill 2F  
for hardened steel up to 72 HRC  
ball radius R = 0,5 x d



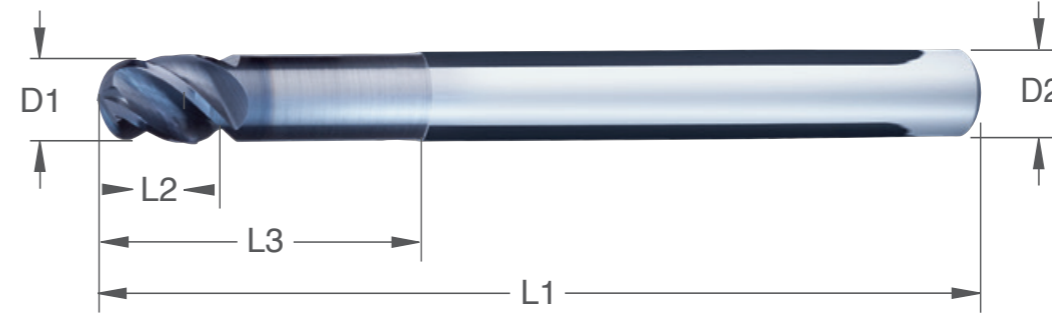
HARD-LINE

diameter range:  
2,0 to 12 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2312  
PM steel  
HSS

	ORDER NUMBER	D1	D2	L2	L1	L3
2,0	HC632020-050	2	6	2,5	50	5
	HC632020-070	2	6	2,5	50	7
	HC632020-120	2	6	2,5	50	12
	HC632020-210	2	6	2,5	50	21
2,5	HC632025-050	2,5	6	2,5	60	5
	HC632025-100	2,5	6	2,5	60	10
	HC632025-150	2,5	6	2,5	60	15
	HC632025-210	2,5	6	2,5	60	21
3,0	HC632030-060	3	6	3	60	6
	HC632030-080	3	6	3	60	8
	HC632030-110	3	6	3	60	11
	HC632030-160	3	6	3	60	16
	HC632030-210	3	6	3	60	21
4,0	HC632040-070	4	6	5	60	7
	HC632040-160	4	6	5	60	16
	HC632040-210	4	6	5	60	21
	HC632040-310	4	6	5	75	31
5,0	HC632050-080	5	6	6	60	8
	HC632050-160	5	6	6	60	16
	HC632050-210	5	6	6	60	21
	HC632050-310	5	6	6	75	31
6,0	HC632060	6	6	8	60	-
	HC632060-160	6	6	8	60	16
	HC632060-310	6	6	8	75	31
	HC632060-410	6	6	8	75	41
8,0	HC632080	8	8	10	60	-
	HC632080-240	8	8	10	60	24
	HC632080-310	8	8	10	75	31
	HC632080-410	8	8	10	75	41
10,0	HC632100	10	10	12	75	-
	HC632100-310	10	10	12	100	31
	HC632100-510	10	10	12	100	51
12,0	HC632120	12	12	15	100	-
	HC632120-360	12	12	15	100	36
	HC632120-510	12	12	15	100	51

HSC-Ball end mill 4F  
for hardened steel up to 72 HRC  
ball radius R = 0,5 x d



HARD-LINE

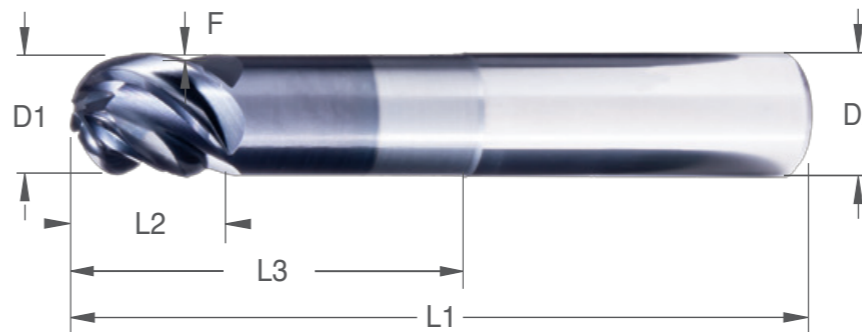
diameter range:  
2,0 to 12 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2343  
PM steel  
HSS

	ORDER NUMBER	D1	D2	L2	L1	L3
2,0	HC634020-060	2	6	2,5	60	6
2,5	HC634025-080	2,5	6	3	60	8
3,0	HC634030-090	3	6	4	60	9
4,0	HC634040-120	4	6	5	60	12
5,0	HC634050-150	5	6	6	60	15

	ORDER NUMBER	D1	D2	L2	L1	L3
6,0	HC634060-180	6	6	8	60	18
8,0	HC634080-240	8	8	10	60	24
10,0	HC634100-300	10	10	12	75	30
12,0	HC634120-360	12	12	15	100	36

HSC-Ball end mill 5F  
for hardened steel up to 72 HRC  
ball radius R = 0,5 x d

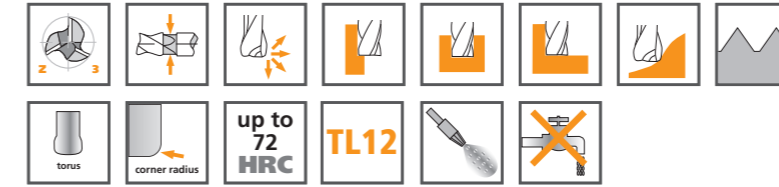
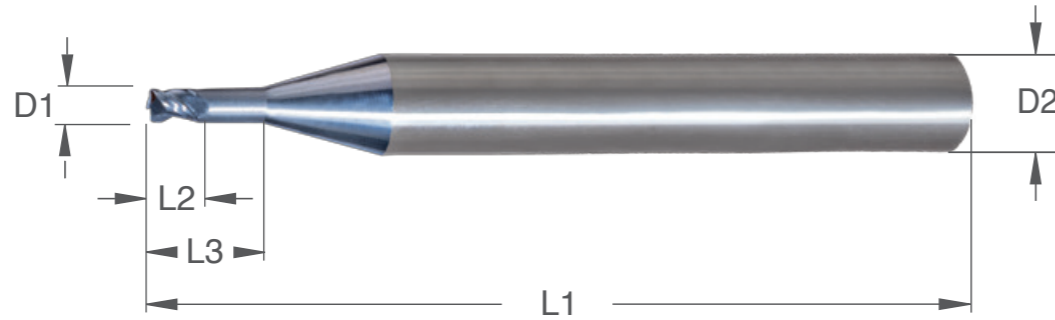
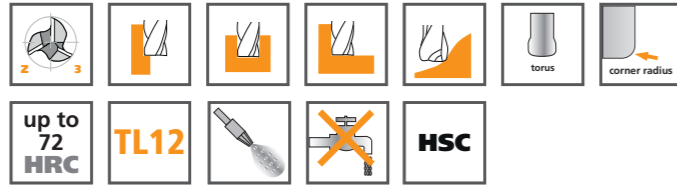


HARD-LINE

diameter range:  
10,0 to 12 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2343  
PM steel  
HSS

	ORDER NUMBER	D1 mm -0,006 -0,015	D2h6 mm h6	L2 mm +0,5	L1 mm +2	L3 mm +1	F mm +0,1
10,0	HC635100-210	10,0	10,0	10,0	75	21	0,05
	HC635100-310	10,0	10,0	10,0	75	31	0,05
	HC635100-410	10,0	10,0	10,0	100	41	0,05
	HC635100-550	10,0	10,0	10,0	100	55	0,05
	HC635100-620	10,0	10,0	10,0	100	62	0,05
	HC635100-110	10,0	10,0	10,0	150	110	0,05
12,0	HC635120-400	12,0	12,0	12,0	75	40	0,05
	HC635120-650	12,0	12,0	12,0	100	65	0,05
	HC635120-101	12,0	12,0	12,0	150	101	0,05
	HC635120-151	12,0	12,0	12,0	200	151	0,05



diameter range:  
0,3 to 2 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2312

PM steel  
HSS

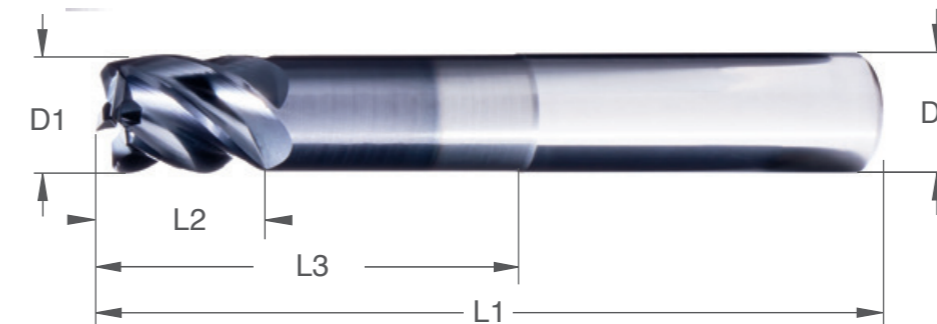
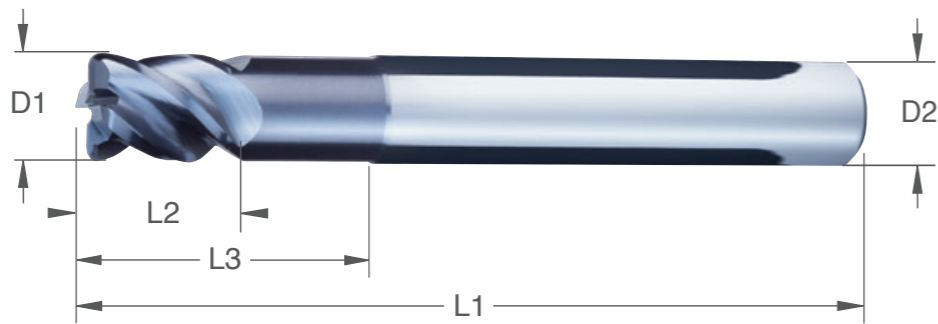
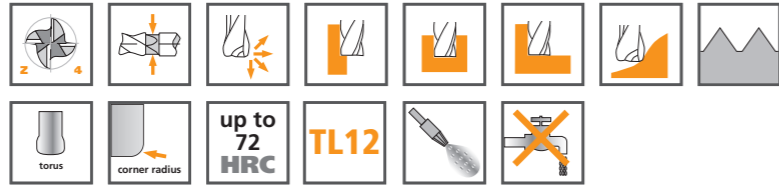
ORDER NUMBER	D1 mm -0,006 -0,015	D2h6 mm h6	L2 mm +0,5	L1 mm +2	L3 mm +1	F mm +0,1	ER mm +0,005
0,3 HC643MUT003-010	0,3	6	0,3	50	1	0,02	0,10
HC643MUT003-015	0,3	6	0,3	50	1,5	0,02	0,10
HC643MUT003-024	0,3	6	0,3	50	2,4	0,02	0,10
HC643MUT003-036	0,3	6	0,3	50	3,6	0,02	0,10
0,4 HC643MUT004-012	0,4	6	0,4	50	1,2	0,02	0,10
HC643MUT004-020	0,4	6	0,4	50	2	0,02	0,10
HC643MUT004-032	0,4	6	0,4	50	3,2	0,02	0,10
HC643MUT004-048	0,4	6	0,4	50	4,8	0,02	0,10
0,5 HC643MUT005-015	0,5	6	0,5	50	1,5	0,02	0,10
HC643MUT005-025	0,5	6	0,5	50	2,5	0,02	0,10
HC643MUT005-040	0,5	6	0,5	50	4	0,02	0,10
HC643MUT005-050	0,5	6	0,5	50	5	0,02	0,10
0,6 HC643MUT006-018	0,6	6	0,6	50	1,8	0,02	0,10
HC643MUT006-030	0,6	6	0,6	50	3	0,02	0,10
HC643MUT006-045	0,6	6	0,6	50	4,5	0,02	0,10
HC643MUT006-060	0,6	6	0,6	50	6	0,02	0,10
0,8 HC643MUT008-024	0,8	6	0,8	50	2,4	0,02	0,10
HC643MUT008-040	0,8	6	0,8	50	4	0,02	0,10
HC643MUT008-065	0,8	6	0,8	50	6,5	0,02	0,10
HC643MUT008-080	0,8	6	0,8	50	8	0,02	0,10
1,0 HC643MUT010-030	1,0	6	1,0	50	3	0,02	0,20
HC643MUT010-050	1,0	6	1,0	50	5	0,02	0,20
HC643MUT010-080	1,0	6	1,0	50	8	0,02	0,20
HC643MUT010-100	1,0	6	1,0	50	10	0,02	0,20
1,2 HC643MUT012-035	1,2	6	1,2	50	3,5	0,02	0,20
HC643MUT012-060	1,2	6	1,2	50	6	0,02	0,20
HC643MUT012-095	1,2	6	1,2	50	9,5	0,02	0,20
HC643MUT012-120	1,2	6	1,2	50	12	0,02	0,20
1,5 HC643MUT015-045	1,5	6	1,5	50	4,5	0,02	0,20
HC643MUT015-075	1,5	6	1,5	50	7,5	0,02	0,20
HC643MUT015-120	1,5	6	1,5	50	12	0,02	0,20
HC643MUT015-150	1,5	6	1,5	50	15	0,02	0,20
2,0 HC643MUT020-060	2,0	6	2,0	50	6	0,02	0,20
HC643MUT020-100	2,0	6	2,0	50	10	0,02	0,20
HC643MUT020-160	2,0	6	2,0	50	16	0,02	0,20
HC643MUT020-200	2,0	6	2,0	50	20	0,02	0,20

diameter range:  
2,5 to 3,0 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2312

PM steel  
HSS

ORDER NUMBER	D1 mm -0,006 -0,015	D2h6 mm h6	L2 mm +0,5	L1 mm +2	L3 mm +1	F mm +0,1	ER mm +0,005
2,5 HC643025-05002	2,5	6	2,5	60	5	0,05	0,2
HC643025-07002	2,5	6	2,5	60	7	0,05	0,2
HC643025-10002	2,5	6	2,5	60	10	0,05	0,2
HC643025-15002	2,5	6	2,5	60	15	0,05	0,2
HC643025-20002	2,5	6	2,5	60	20	0,05	0,2
HC643025-28002	2,5	6	2,5	60	28	0,05	0,2
3,0 HC643030-06002	3,0	6	3,0	60	6	0,05	0,2
HC643030-06005	3,0	6	3,0	60	6	0,05	0,5
HC643030-08002	3,0	6	3,0	60	8	0,05	0,2
HC643030-08005	3,0	6	3,0	60	8	0,05	0,5
HC643030-11002	3,0	6	3,0	60	11	0,05	0,2
HC643030-11005	3,0	6	3,0	60	11	0,05	0,5
HC643030-16002	3,0	6	3,0	60	16	0,05	0,2
HC643030-16005	3,0	6	3,0	60	16	0,05	0,5
HC643030-21002	3,0	6	3,0	60	21	0,05	0,2
HC643030-21005	3,0	6	3,0	60	21	0,05	0,5
HC643030-26002	3,0	6	3,0	60	26	0,05	0,2
HC643030-26005	3,0	6	3,0	60	26	0,05	0,5
HC643030-31002	3,0	6	3,0	60	31	0,05	0,2
HC643030-31005	3,0	6	3,0	60	31	0,05	0,5



ORDER NUMBER	D1	D2	L2	L1	L3	ER
4,0 HC644040-08002	4	6	4	60	8	0,2
HC644040-08005	4	6	4	60	8	0,5
HC644040-12002	4	6	4	60	12	0,2
HC644040-12005	4	6	4	60	12	0,5
HC644040-17002	4	6	4	60	17	0,2
HC644040-17005	4	6	4	60	17	0,5
HC644040-23002	4	6	4	60	23	0,2
HC644040-23005	4	6	4	60	23	0,5
HC644040-31002	4	6	4	60	31	0,2
HC644040-31005	4	6	4	60	31	0,5
5,0 HC644050-10002	5	6	5	60	10	0,2
HC644050-10005	5	6	5	60	10	0,5
HC644050-15002	5	6	5	60	15	0,2
HC644050-15005	5	6	5	60	15	0,5
HC644050-20002	5	6	5	60	20	0,2
HC644050-20005	5	6	5	60	20	0,5
HC644050-25002	5	6	5	60	25	0,2
HC644050-25005	5	6	5	60	25	0,5
HC644050-31002	5	6	5	60	31	0,2
HC644050-31005	5	6	5	60	31	0,5
6,0 HC644060-11002	6	6	6	60	11	0,2
HC644060-11005	6	6	6	60	11	0,5
HC644060-11010	6	6	6	60	11	1,0
HC644060-16002	6	6	6	60	16	0,2
HC644060-16005	6	6	6	60	16	0,5
HC644060-16010	6	6	6	60	16	1,0
HC644060-21002	6	6	6	60	21	0,2
HC644060-21005	6	6	6	60	21	0,5
HC644060-21010	6	6	6	60	21	1,0
HC644060-26002	6	6	6	60	26	0,2
HC644060-26005	6	6	6	60	26	0,5
HC644060-26010	6	6	6	60	26	1,0
HC644060-31002	6	6	6	60	31	0,2
HC644060-31005	6	6	6	60	31	0,5
HC644060-31010	6	6	6	60	31	1,0
HC644060-36002	6	6	6	60	36	0,2
HC644060-36005	6	6	6	60	36	0,5
HC644060-36010	6	6	6	60	36	1,0
HC644060-41002	6	6	6	75	41	0,2
HC644060-41005	6	6	6	75	41	0,5
HC644060-41010	6	6	6	75	41	1,0

ORDER NUMBER	D1	D2	L2	L1	L3	ER
8,0 HC644080-16002	8	8	8	60	16	0,2
HC644080-16005	8	8	8	60	16	0,5
HC644080-16010	8	8	8	60	16	1,0
HC644080-16015	8	8	8	60	16	1,5
HC644080-21002	8	8	8	60	21	0,2
HC644080-21005	8	8	8	60	21	0,5
HC644080-21010	8	8	8	60	21	1,0
HC644080-21015	8	8	8	60	21	1,5
HC644080-28002	8	8	8	60	28	0,2
HC644080-28005	8	8	8	60	28	0,5
HC644080-28010	8	8	8	60	28	1,0
HC644080-28015	8	8	8	60	28	1,5
HC644080-33002	8	8	8	75	33	0,2
HC644080-33005	8	8	8	75	33	0,5
HC644080-33010	8	8	8	75	33	1,0
HC644080-33015	8	8	8	75	33	1,5
HC644080-41002	8	8	8	75	41	0,2
HC644080-41005	8	8	8	75	41	0,5
HC644080-41010	8	8	8	75	41	1,0
HC644080-41015	8	8	8	75	41	1,5
HC644080-51002	8	8	8	100	51	0,2
HC644080-51005	8	8	8	100	51	0,5
HC644080-51010	8	8	8	100	51	1,0
HC644080-51015	8	8	8	100	51	1,5
HC644080-61002	8	8	8	100	61	0,2
HC644080-61005	8	8	8	100	61	0,5
HC644080-61010	8	8	8	100	61	1,0
HC644080-61015	8	8	8	100	61	1,5

diameter range:  
4,0 to 8 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2312

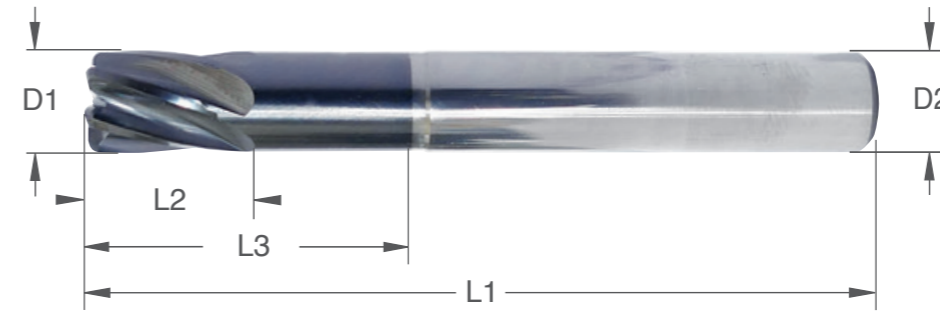
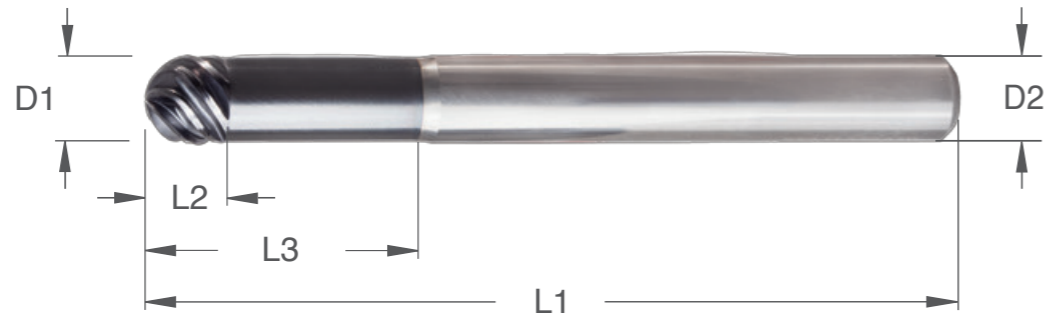
PM steel  
HSS

ORDER NUMBER	D1	D2	L2	L1	L3	ER
6,0 HC645060-00002	6	6	15	60		0,2
HC645060-00005	6	6	15	60		0,5
HC645060-00010	6	6	15	60		1,0
8,0 HC645080-25005	8	8	8	75	25	0,5
HC645080-25010	8	8	8	75	25	1,0
HC645080-25015	8	8	8	75	25	1,5
HC645080-24005	8	8	19	75	24	0,5
HC645080-24010	8	8	19	75	24	1,0
HC645080-24015	8	8	19	75	24	1,5
HC645080-41005	8	8	8	100	41	0,5
HC645080-41010	8	8	8	100	41	1,0
HC645080-41015	8	8	8	100	41	1,5
10,0 HC645100-32005	10	10	10	75	32	0,5
HC645100-32010	10	10	10	75	32	1,0
HC645100-32015	10	10	10	75	32	1,5
HC645100-32020	10	10	10	75	32	2,0
HC645100-31005	10	10	22	75	31	0,5
HC645100-31010	10	10	22	75	31	1,0
HC645100-31015	10	10	22	75	31	1,5
HC645100-31020	10	10	22	75	31	2,0
HC645100-51005	10	10	10	100	51	0,5
HC645100-51010	10	10	10	100	51	1,0
HC645100-51015	10	10	10	100	51	1,5
HC645100-51020	10	10	10	100	51	2,0
12,0 HC645120-35005	12	12	12	75	35	0,5
HC645120-35010	12	12	12	75	35	1,0
HC645120-35015	12	12	12	75	35	1,5
HC645120-35020	12	12	12	75	35	2,0
HC645120-36005	12	12	26	75	36	0,5
HC645120-36010	12	12	26	75	36	1,0
HC645120-36015	12	12	26	75	36	1,5
HC645120-36020	12	12	26	75	36	2,0
HC645120-55005	12	12	12	100	55	0,5
HC645120-55010	12	12	12	100	55	1,0
HC645120-55015	12	12	12	100	55	1,5
HC645120-55020	12	12	12	100	55	2,0

diameter range:  
6,0 to 12 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2312

PM steel  
HSS



HARD-LINE

HARD-LINE

diameter range:  
2,0 to 12 mm

usable e.g.  
steel 1.2379  
1.2767  
1.2312

PM steel  
HSS

ORDER NUMBER	D1 mm -0,006 -0,015	D2h6 mm h6	L2 mm +0,5	L1 mm +2	L3 mm +1	Z
2,0 HHF667020-060	2	6	2	60	6	5
2,5 HHF667025-080	2,5	6	2,5	60	8	5
3,0 HHF667030-100	3	6	3	60	10	5
4,0 HHF667040-120	4	6	4	60	12	6
5,0 HHF667050-150	5	6	5	60	15	6
6,0 HHF667060-180	6	6	6	75	18	7
8,0 HHF667080-240	8	8	8	75	24	7
10,0 HHF667100-300	10	10	10	80	30	9
12,0 HHF667120-360	12	12	12	100	36	9

diameter range:  
2,0 to 12 mm

usable e.g.  
Steel as from 50 HRC

PM steel  
HSS

ORDER NUMBER	D1	D2	L2	L1	L3	CAM-R	Z
2,0 HHF646020-060	2	6	2	50	6	0,21	4
3,0 HHF646030-090	3	6	3	60	9	0,33	4
4,0 HHF646040-120	4	6	3	60	12	0,43	6
5,0 HHF646050-150	5	6	4	60	15	0,55	6
6,0 HHF646060-180	6	6	5	60	18	0,725	6
8,0 HHF646080-240	8	8	6	75	24	1,06	6
10,0 HHF646100-300	10	10	8	80	30	1,15	6
12,0 HHF646120-360	12	12	10	100	36	1,385	6

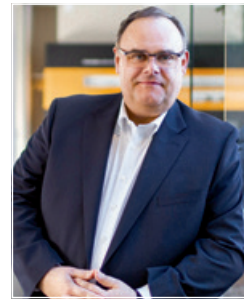
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*Ralph R. Hufschmied, Managing Director*



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