



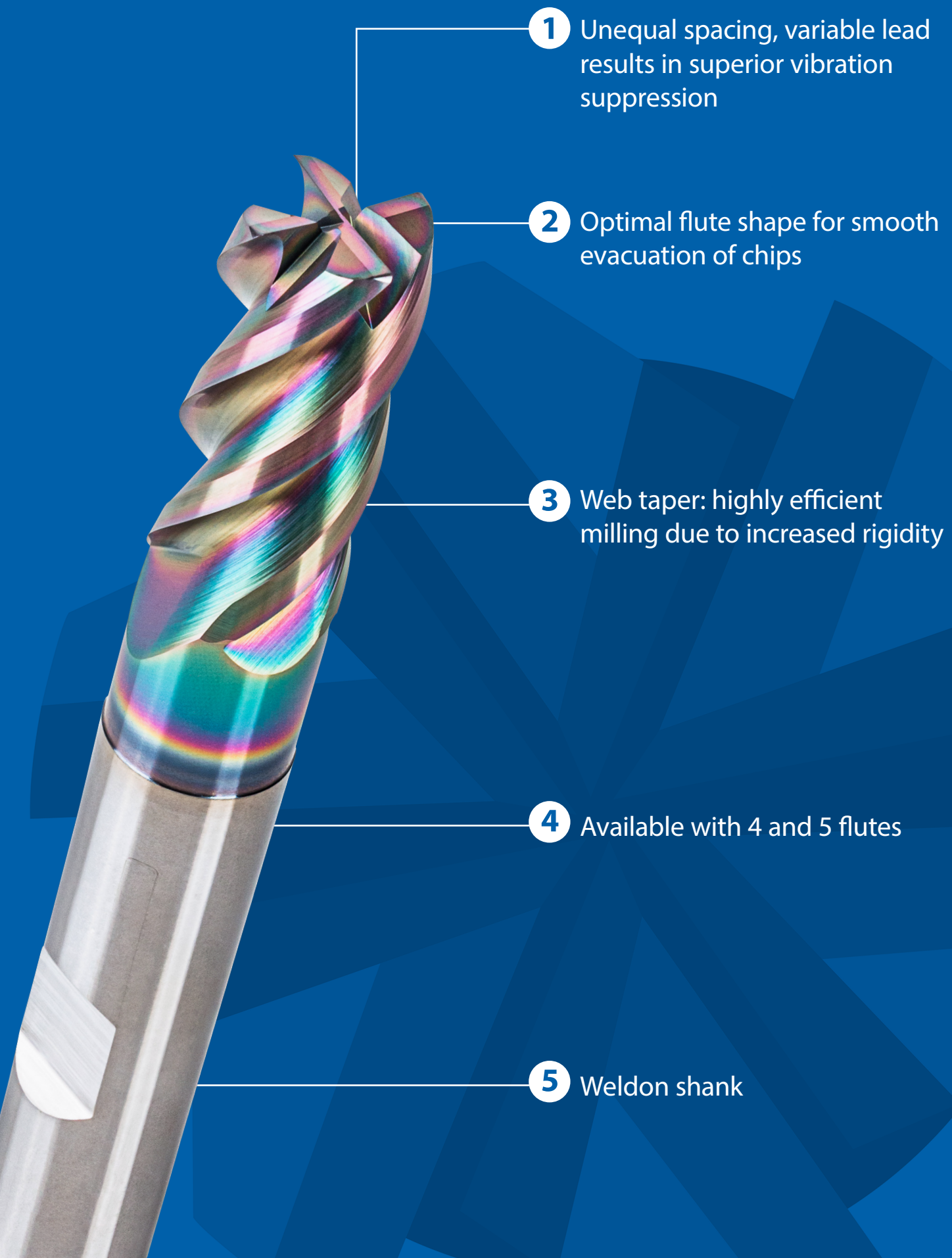
End Mills for general purpose and exotic materials

EPL-HP-SERIES

Volume 4



KEY FEATURES: EPL-HP-4FL/5FL



1 Unequal spacing, variable lead results in superior vibration suppression

2 Optimal flute shape for smooth evacuation of chips

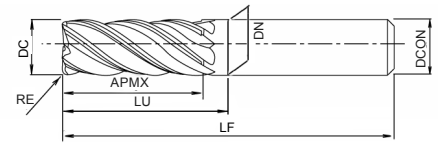
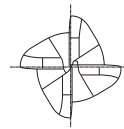
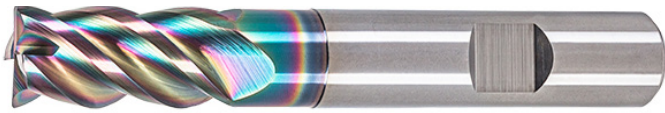
3 Web taper: highly efficient milling due to increased rigidity

4 Available with 4 and 5 flutes

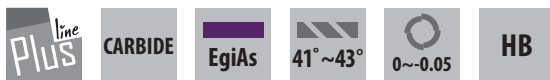
5 Weldon shank

EPL-HP-4FL

Milling | Solid carbide



- Carbide end mill with EgiAs coating
- For general applications and exotic materials
- 4 flutes, variable helix and unequal spacing, corner radius
- Weldon shank



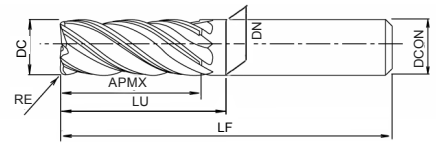
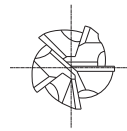
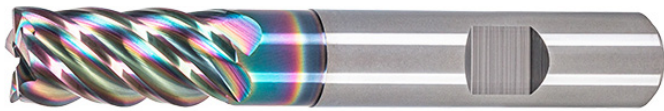
EDP	ZEFP	DC	RE	LU	LF	APMX	DCON	DN
EP01930399	4	3	-	11	57	8	6	-
EP01930300	4	3	0,25	11	57	8	6	-
EP01930301	4	3	0,5	11	57	8	6	-
EP01930499	4	4	-	13	57	11	6	-
EP01930400	4	4	0,25	13	57	11	6	-
EP01930401	4	4	0,5	13	57	11	6	-
EP01930402	4	4	1	13	57	11	6	-
EP01930599	4	5	-	15	57	13	6	-
EP01930500	4	5	0,25	15	57	13	6	-
EP01930501	4	5	0,5	15	57	13	6	-
EP01930502	4	5	1	15	57	13	6	-
EP01930699	4	6	-	20	57	13	6	5,8
EP01930600	4	6	0,25	20	57	13	6	5,8
EP01930601	4	6	0,5	20	57	13	6	5,8
EP01930602	4	6	1	20	57	13	6	5,8
EP01930603	4	6	1,5	20	57	13	6	5,8
EP01930899	4	8	-	25	63	19	8	7,8
EP01930800	4	8	0,25	25	63	19	8	7,8
EP01930801	4	8	0,5	25	63	19	8	7,8
EP01930802	4	8	1	25	63	19	8	7,8
EP01930803	4	8	1,5	25	63	19	8	7,8
EP01931099	4	10	-	30	72	22	10	9,8
EP01931000	4	10	0,25	30	72	22	10	9,8
EP01931001	4	10	0,5	30	72	22	10	9,8
EP01931002	4	10	1	30	72	22	10	9,8
EP01931003	4	10	1,5	30	72	22	10	9,8
EP01931004	4	10	2	30	72	22	10	9,8
EP01931006	4	10	3	30	72	22	10	9,8
EP01931299	4	12	-	38	83	26	12	11,8
EP01931200	4	12	0,25	38	83	26	12	11,8
EP01931201	4	12	0,5	38	83	26	12	11,8
EP01931202	4	12	1	38	83	26	12	11,8
EP01931204	4	12	2	38	83	26	12	11,8
EP01931206	4	12	3	38	83	26	12	11,8
EP01931207	4	12	4	38	83	26	12	11,8
EP01931499	4	14	-	44	92	32	16	15,8
EP01931400	4	14	0,25	44	92	32	16	15,8
EP01931402	4	14	1	44	92	32	16	15,8
EP01931699	4	16	-	44	92	32	16	15,8
EP01931600	4	16	0,25	44	92	32	16	15,8
EP01931601	4	16	0,5	44	92	32	16	15,8
EP01931602	4	16	1	44	92	32	16	15,8
EP01931604	4	16	2	44	92	32	16	15,8
EP01931606	4	16	3	44	92	32	16	15,8
EP01931607	4	16	4	44	92	32	16	15,8
EP01932099	4	20	-	54	104	38	20	19,8

Milling | Solid carbide

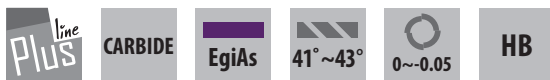


EPL-HP-5FL

Milling | Solid carbide



- Carbide end mill with EgiAs coating
- For general applications and exotic materials
- 5 flutes, variable helix and unequal spacing, corner radius
- Weldon shank



EDP	ZEFP	DC	RE	LU	LF	APMX	DCON	DN
EP01940699	5	6	-	20	57	13	6	5,8
EP01940600	5	6	0,25	20	57	13	6	5,8
EP01940601	5	6	0,5	20	57	13	6	5,8
EP01940602	5	6	1	20	57	13	6	5,8
EP01940899	5	8	-	25	63	19	8	7,8
EP01940800	5	8	0,25	25	63	19	8	7,8
EP01940801	5	8	0,5	25	63	19	8	7,8
EP01940802	5	8	1	25	63	19	8	7,8
EP01940803	5	8	1,5	25	63	19	8	7,8
EP01941099	5	10	-	30	72	22	10	9,8
EP01941000	5	10	0,25	30	72	22	10	9,8
EP01941001	5	10	0,5	30	72	22	10	9,8
EP01941002	5	10	1	30	72	22	10	9,8
EP01941003	5	10	1,5	30	72	22	10	9,8
EP01941004	5	10	2	30	72	22	10	9,8
EP01941006	5	10	3	30	72	22	10	9,8
EP01941299	5	12	-	38	83	26	12	11,8
EP01941200	5	12	0,25	38	83	26	12	11,8
EP01941201	5	12	0,5	38	83	26	12	11,8
EP01941202	5	12	1	38	83	26	12	11,8
EP01941204	5	12	2	38	83	26	12	11,8
EP01941206	5	12	3	38	83	26	12	11,8
EP01941207	5	12	4	38	83	26	12	11,8
EP01941699	5	16	-	44	92	32	16	15,8
EP01941600	5	16	0,25	44	92	32	16	15,8
EP01941601	5	16	0,5	44	92	32	16	15,8
EP01941602	5	16	1	44	92	32	16	15,8
EP01941604	5	16	2	44	92	32	16	15,8
EP01941606	5	16	3	44	92	32	16	15,8
EP01941607	5	16	4	44	92	32	16	15,8
EP01942099	5	20	-	54	104	38	20	19,8
EP01942000	5	20	0,25	54	104	38	20	19,8
EP01942001	5	20	0,5	54	104	38	20	19,8
EP01942002	5	20	1	54	104	38	20	19,8
EP01942004	5	20	2	54	104	38	20	19,8
EP01942006	5	20	3	54	104	38	20	19,8
EP01942007	5	20	4	54	104	38	20	19,8

Milling | Solid carbide



CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

EPL-HP-4FL

Slotting

Vc		Steels St-52 • C45 • GG-25			Hardened steels ~35 HRC 42CrMo4			Hardened steels ~45 HRC 1.2379			Stainless steel 1.4301			Titanium Ti6AlV4		
Vc		120 m/min			120 m/min			70 m/min			60 m/min			50 m/min		
Ø	Z	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)
3	4	12.739	1.325	0,026	12.739	1.325	0,026	7.431	773	0,026	6.369	535	0,018	5.308	382	0,018
4	4	9.549	1.146	0,030	9.549	1.146	0,030	5.570	668	0,030	4.775	382	0,020	3.979	318	0,020
5	4	7.639	1.146	0,038	7.639	1.146	0,038	4.456	668	0,038	3.820	382	0,025	3.183	318	0,025
6	4	6.366	1.146	0,045	6.366	1.146	0,045	3.714	668	0,045	3.183	382	0,030	2.653	318	0,030
8	4	4.775	1.146	0,060	4.775	1.146	0,060	2.785	668	0,060	2.387	382	0,040	1.989	318	0,040
10	4	3.820	1.146	0,075	3.820	1.146	0,075	2.228	668	0,075	1.910	382	0,050	1.592	318	0,050
12	4	3.183	1.146	0,090	3.183	1.146	0,090	1.857	668	0,090	1.592	382	0,060	1.326	318	0,060
14	4	2.728	1.146	0,105	2.728	1.146	0,105	1.592	668	0,105	1.364	382	0,070	1.137	318	0,070
16	4	2.387	1.146	0,120	2.387	1.146	0,120	1.393	668	0,120	1.194	382	0,080	995	318	0,080
20	4	1.910	1.146	0,150	1.910	1.146	0,150	1.114	668	0,150	955	382	0,100	796	318	0,100

ap x d F(fz) correction		ap	Fakt.
		0,5	1,0
		1,0	0,7
		1,5	0,5
		2,0	0,3

The above stated application data are as per **RED** marked parameters.

EPL-HP-4FL

Side milling

Vc		Steels St-52 • C45 • GG-25			Hardened steels ~35 HRC 42CrMo4			Hardened steels ~45 HRC 1.2379			Stainless steel 1.4301			Titanium Ti6AlV4		
Vc		140 m/min			140 m/min			80 m/min			70 m/min			60 m/min		
Ø	Z	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)
3	4	14.862	3.567	0,060	14.862	3.567	0,060	8.493	2.038	0,060	7.431	1.019	0,030	6.369	764	0,030
4	4	11.141	3.565	0,080	11.141	3.565	0,080	6.366	2.037	0,080	5.570	891	0,040	4.775	764	0,040
5	4	8.913	3.565	0,100	8.913	3.565	0,100	5.093	2.037	0,100	4.456	891	0,050	3.820	764	0,050
6	4	7.427	3.565	0,120	7.427	3.565	0,120	4.244	2.037	0,120	3.714	891	0,060	3.183	764	0,060
8	4	5.570	3.565	0,160	5.570	3.565	0,160	3.183	2.037	0,160	2.785	891	0,080	2.387	764	0,080
10	4	4.456	3.565	0,200	4.456	3.565	0,200	2.546	2.037	0,200	2.228	891	0,100	1.910	764	0,100
12	4	3.714	3.565	0,240	3.714	3.565	0,240	2.122	2.037	0,240	1.857	891	0,120	1.592	764	0,120
14	4	3.183	3.565	0,280	3.183	3.565	0,280	1.819	2.037	0,280	1.592	891	0,140	1.364	764	0,140
16	4	2.785	3.565	0,320	2.785	3.565	0,320	1.592	2.037	0,320	1.393	891	0,160	1.194	764	0,160
20	4	2.228	3.565	0,400	2.228	3.565	0,400	1.273	2.037	0,400	1.114	891	0,200	955	764	0,200

ap x d F(fz) correction		ap	Fakt.
		0,5	1,3
		1,0	1,2
		1,5	1,0
		2,0	0,8

ap	Fakt.		
		0,5	1,2
		1,0	1,0
		1,5	0,7
		2,0	0,5

The above stated application data are as per **RED** marked parameters.

Milling | Endmills

Cutting conditions

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

EPL-HP-5FL

Slotting

Vc		Steels St-52 • C45 • GG-25			Hardened steels ~35 HRC 42CrMo4			Hardened steels ~45 HRC 1.2379			Stainless steel 1.4301			Titanium Ti6AlV4		
Ø	Z	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)
6	5	6.369	1.433	0,045	6.369	1.433	0,045	3.715	836	0,045	3.185	650	0,035	2.654	464	0,035
8	5	4.775	1.432	0,060	4.775	1.432	0,060	2.785	836	0,060	2.387	477	0,040	1.989	398	0,040
10	5	3.820	1.432	0,075	3.820	1.432	0,075	2.228	836	0,075	1.910	477	0,050	1.592	398	0,050
12	5	3.183	1.432	0,090	3.183	1.432	0,090	1.857	836	0,090	1.592	477	0,060	1.326	398	0,060
16	5	2.387	1.432	0,120	2.387	1.432	0,120	1.393	836	0,120	1.194	477	0,080	995	398	0,080
20	5	1.910	1.432	0,150	1.910	1.432	0,150	1.114	836	0,150	955	477	0,100	796	398	0,100

ap x d	F(fz) correction	ap	Fakt.
		0,5	1,0
		1,0	0,7
		1,5	0,5
		2,0	0,3

The above stated application data are as per **RED** marked parameters.

EPL-HP-5FL

Side milling

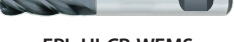
Vc		Steels St-52 • C45 • GG-25			Hardened steels ~35 HRC 42CrMo4			Hardened steels ~45 HRC 1.2379			Stainless steel 1.4301			Titanium Ti6AlV4		
Ø	Z	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)	S (min ⁻¹)	F (mm/min)	fz (mm)
6	5	7.431	4.459	0,120	7.431	4.459	0,120	4.246	2.548	0,120	3.715	1.274	0,060	3.185	955	0,060
8	5	5.570	4.456	0,160	5.570	4.456	0,160	3.183	2.546	0,160	2.785	1.114	0,080	2.387	955	0,080
10	5	4.456	4.456	0,200	4.456	4.456	0,200	2.546	2.546	0,200	2.228	1.114	0,100	1.910	955	0,100
12	5	3.714	4.456	0,240	3.714	4.456	0,240	2.122	2.546	0,240	1.857	1.114	0,120	1.592	955	0,120
16	5	2.785	4.456	0,320	2.785	4.456	0,320	1.592	2.546	0,320	1.393	1.114	0,160	1.194	955	0,160
20	5	2.228	4.456	0,400	2.228	4.456	0,400	1.273	2.546	0,400	1.114	1.114	0,200	955	955	0,200

ap x d	F(fz) correction	ap	Fakt.
		0,5	1,3
		1	1,2
		1,5	1,0
		2	0,8

ap	Fakt.
0,5	1,2
1,0	1,0
1,5	0,7
2,0	0,5

The above stated application data are as per **RED** marked parameters.

ALSO AVAILABLE FROM PLUS-LINE

Type	Coating	Material	Material													Range							
			Hardened Steel					SUS	GG														
			~40 HRC	~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB	Cu	Al	Graphite	Ti	HRS	Plast.		CFRP						
 EPL-ETS	TiAlN	CARBIDE	⊙	⊙	○				⊙	⊙	○	○					⊙	⊙					4 ~ 16
 EPL-SB-EBD	TiAlN	CARBIDE	⊙	⊙	○	○			○	⊙	○	○					○	○					R0,5 ~ R10
 EPL-SB-LN-EBD	TiAlN	CARBIDE	⊙	⊙	○	○			○	⊙	○	○					○	○					R0,5 ~ R10
 EPL-SB-EBM	TiAlN	CARBIDE	⊙	⊙	○	○			○	⊙	○	○					○	○					R2 ~ R6
 EPL-HI-EMS	TiAlN	CARBIDE	⊙	⊙	⊙	○			⊙	⊙	○	○					⊙	⊙					4 ~ 20
 EPL-HI-WEMS	TiAlN	CARBIDE	⊙	⊙	⊙	○			⊙	⊙	○	○					⊙	⊙					4 ~ 20
 EPL-HI-CR-EMS	TiAlN	CARBIDE	⊙	⊙	⊙	○			⊙	⊙	○	○					⊙	⊙					4 ~ 16
 EPL-HI-CR-WEMS	TiAlN	CARBIDE	⊙	⊙	⊙	○			⊙	⊙	○	○					⊙	⊙					4 ~ 20
 EPL-WRESF	TiAlN	CARBIDE	⊙	⊙	⊙				○	○	○	○											4 ~ 25
 EPL-PC-EBD	TiAlN	CARBIDE	⊙	⊙	○	○			⊙	⊙	⊙	○					○	○					R0,5 ~ R4
 EPL-PC-EBD-DIA	DIA	CARBIDE	⊙	⊙					⊙	⊙	⊙	○					○	○					R0,5 ~ R4
 EPL-LN-EBD	TiAlN	CARBIDE	⊙	⊙	○	○			⊙	⊙	⊙	○					○	○					R0,15 ~ R3
 EPL-CPR	TiAlN	CARBIDE	⊙	⊙	⊙	⊙	○		○	○							○	○					2 ~ 8
 EPL-CPR-DIA	DIA	CARBIDE	⊙	⊙	⊙	⊙			⊙														4 ~ 8
 EPL-HP-4FL	EgiAs	CARBIDE	⊙	⊙					⊙	⊙	○	○					⊙						3 ~ 20
 EPL-HP-5FL	EgiAs	CARBIDE	⊙	⊙					⊙	⊙	○	○					⊙						6 ~ 20





www.osgeurope.com



SWEDEN

Branch office of OSG SCANDINAVIA
Singelgatan 7
212 28 Malmö
Sweden
Tel: +46 40 41 22 55
osg@osg-scandinavia.com

OSG SCANDINAVIA

(For Scandinavian countries)
Langebjergvaenget 16
4000 Roskilde
Denmark
Tel: +45 46 75 65 55
osg@osg-scandinavia.com

OSG NETHERLANDS

Bedrijfsweg 5
3481 MG Harmelen
The Netherlands
Tel: +31 348 44 2764
info@osg-nl.com

OSG UK

Kelsey Close, Attleborough Fields Ind Est,
CV11 6RS, Nuneaton
United Kingdom
Tel: +44 (0) 1827 720 013
uk_sales@osg-uk.com

OSG EUROPE LOGISTICS

Avenue Lavoisier 1
B-1300 Z.I. Wavre - Nord
Belgium
Tel: +32 10 23 05 07
info@osgeurope.com

OSG BELUX

Avenue Lavoisier 1
B-1300 Z.I. Wavre - Nord
Belgium
Tel: +32 10 23 05 11
info@osg-belgium.com

OSG IBÉRICA

Bekolarra 4
E - 01010 Vitoria-Gasteiz
Spain
Tel: +34 945 242 400
osg.iberica@osg-ib.com

OSG FRANCE

Parc Icade, Paris Nord 2
Immeuble "Le Rimbaud"
22 Avenue des Nations
CS66191 - 93420 Villepinte
France
Tel: +33 1 49 90 10 10
sales@osg-france.com

OSG ITALY

Via Ferrero, 65 A/B
I - 10098 Rivoli
Italy
Tel: +39 0117705211
info@osg-italia.it



OSG IN EUROPE

CZECH REPUBLIC, SLOVAKIA, HUNGARY

OSG Europe Logistics S.A.
Slovakia, organizačná zložka
Račianska 22/A, Bratislava 831 02
Slovakia
Tel.: +421 24 32 91 295
info@osgeurope.com

OSG POLAND

ul. Spółdzielcza 57
05-074 Halinów
Polska
Tel: +22 760 82 71
Mob. +48 570 677 711
osg@osg-poland.com

OSG ROMANIA SRL

25C, Bucuresti-Magurele Street (Sector 5)
051431 Bucuresti
România
Tel: +40 21 322 07 47
info@osgromania.ro

OSG TURKEY

Rami Kişla Cad.No:56 Eyüp
Istanbul 34056
Turkey
Tel: +90 212 565 24 00
Fax: +90 212 565 44 00
info@osg-turkey.com

Vischer & Bolli AG

Machining and Workholding
Im Schossacher 17
CH-8600 Dübendorf
Switzerland
Tel.: +41 44 802 15 15
info@vb-tools.com

OSG GERMANY

Karl-Ehmann-Str. 25
D - 73037 Göppingen
Germany
Tel: +49 7161 6064 - 0
Fax: +49 7161 6064 - 444
info@osg-germany.de



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OSG EUROPE LOGISTICS

Avenue Lavoisier 1
B-1300 Z.I. Wavre - Nord - Belgium
Tel: +32 10 23 05 07
info@osgeurope.com

OSG POLAND Sp. z o.o.

Spółdzielcza 57
05-074 Halinów - Poland
Tel: +22 760 82 71
osg@osg-poland.com

OSG ROMANIA SRL

25C, Bucuresti-Magurele Street (Sector 5)
051431 Bucuresti - România
Tel: +40 21 322 07 47
info@osgromania.ro

OSG BELUX

Avenue Lavoisier 1
B-1300 Z.I. Wavre - Nord - Belgium
Tel: +32 10 23 05 11
info@osg-belgium.com

OSG GERMANY

Karl-Ehmann-Str. 25
D - 73037 Göppingen - Germany
Tel: +49 7161 6064 - 0
Fax: +49 7161 6064 - 444
info@osg-germany.de

AUSTRIA

Branch office of OSG GERMANY
Messestraße 11
A-6850 Dornbirn
Tel: +49 7161 6064-0
info@osg-germany.de

OSG FRANCE

Parc Icade, Paris Nord 2
Immeuble "Le Rimbaud"
22 Avenue des Nations
CS66191 - 93420 Villepinte - France
Tel: +33 1 49 90 10 10
sales@osg-france.com

OSG SCANDINAVIA

(For Scandinavian countries)
Langebjergvaenget 16
4000 Roskilde - Denmark
Tel: +45 46 75 65 55
osg@osg-scandinavia.com

OSG ITALIA

Via Ferrero, 65 A/B3
I - 10098 Rivoli - Italy
Tel: +39 0117705211
info@osg-italia.it

OSG NETHERLANDS

Bedrijfsweg 5 - 3481 MG Harmelen
Tel: +31 348 44 2764
info@osg-nl.com

SWEDEN

Branch office of OSG SCANDINAVIA
Singelgatan 7
212 28 Malmö - Sweden
Tel: +46 40 41 22 55
osg@osg-scandinavia.com

Vischer & Bolli AG

Machining and Workholding
Im Schossacher 17
CH-8600 Dübendorf
T +41 44 802 15 15
info@vb-tools.com

OSG UK

Kelsey Close, Attleborough Fields Ind Est,
CV11 6RS, Nuneaton, United Kingdom.
Tel: +44 1827 720 013
uk_sales@osg-uk.com

OSG IBERICA

Bekolarra 4
E - 01010 Vitoria-Gasteiz - Spain
Tel: +34 945 242 400
osg.iberica@osg-ib.com

CZECH, SLOVAKIA, HUNGARY

OSG Europe Logistics S.A.
Slovakia organizacna zlozka
Racianská 22/A, SK-83102 Bratislava
Slovakia
Tel. +421 24 32 91 295
Orders-osgsvk@osgeurope.com

OSG TURKEY

Rami Kışla Cad.No:56 Eyüp
Istanbul 34056 - Turkey
Tel+90 212 565 24 00
Fax: +90 212 565 44 00
info@osg-turkey.com

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