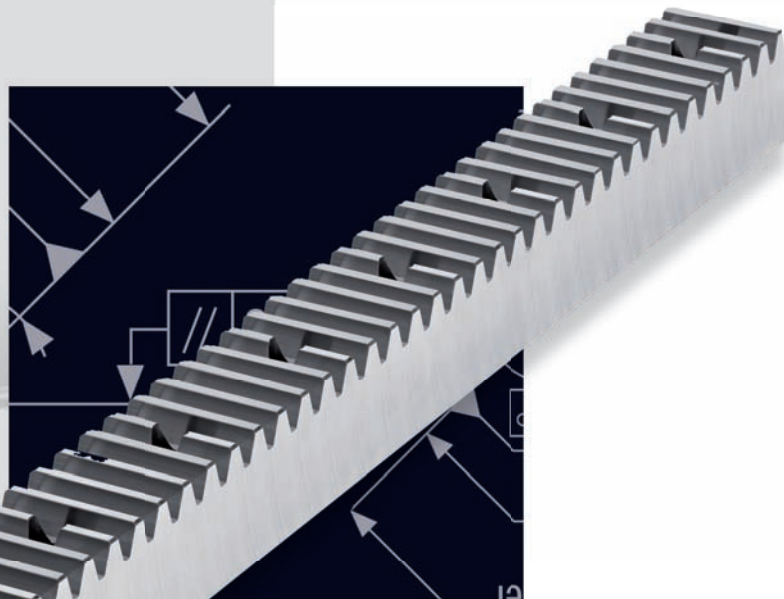
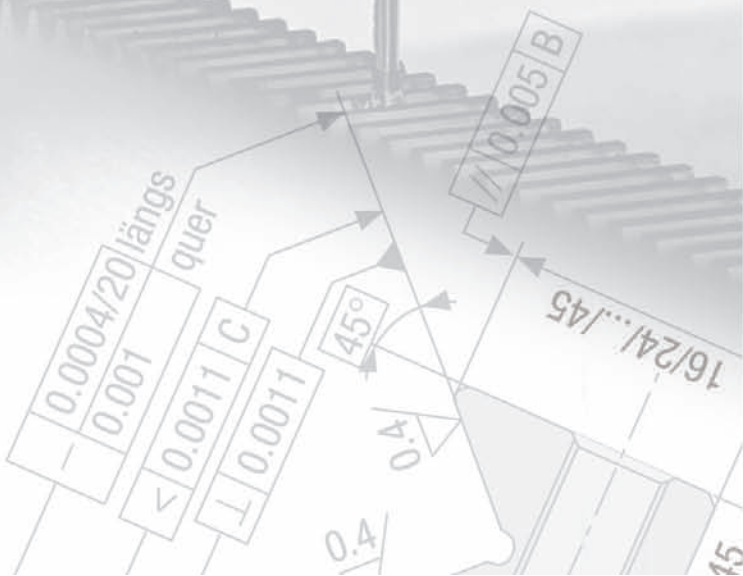


**SCHNEEBERGER**  
LINEAR TECHNOLOGY



## RACKS

Standard and customized





# Standard racks straight tooth system

figure 1

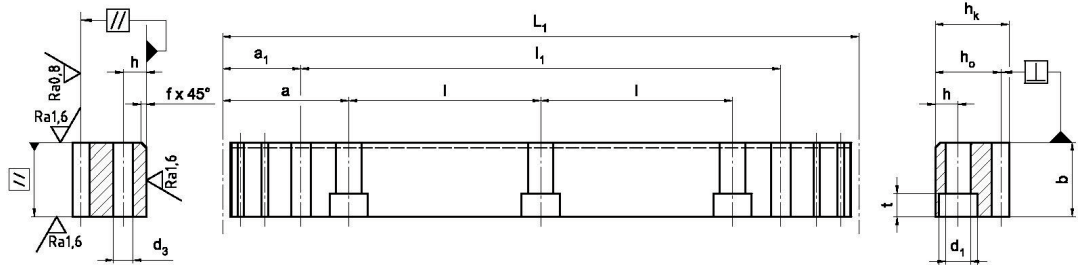


figure 2

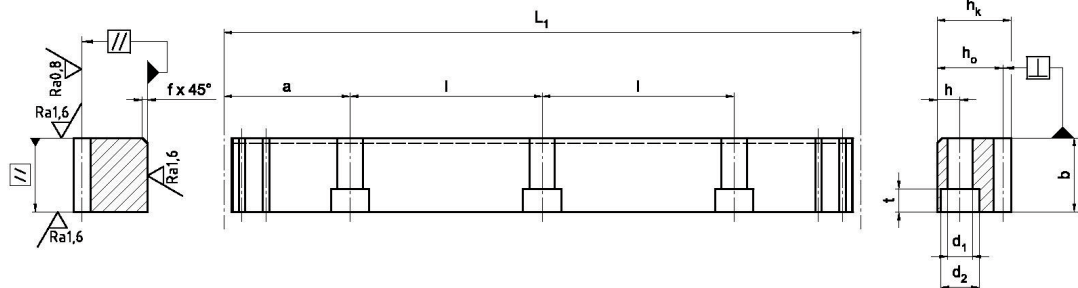
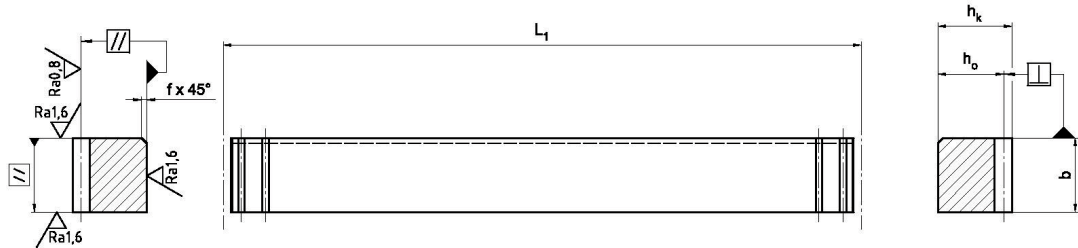


figure 3



Standard lengths	m <sup>1)</sup>	p <sup>4)</sup>	L <sub>1</sub>	z <sup>2)</sup>	b	h <sub>k</sub>	h <sub>o</sub>	f	a	l	n <sup>3)</sup>	h	d <sub>1</sub>	d <sub>2</sub>	t	a <sub>1</sub>	l <sub>1</sub>	d <sub>3</sub>	mass
	-	mm	mm	-	mm	mm	mm	mm	mm	mm	-	mm	mm	mm	mm	mm	mm	mm	kg
ZST M2 - 24x 24x 1005-G	2	6.28	1005.3	160	24	24	22	2	62.8	125.66	8	8	7	11	7	31.3	942.7	5.7	4.2
ZST M2 - 24x 24x 2010-G	2	6.28	2010.6	320	24	24	22	2	62.8	125.66	16	8	7	11	7	31.3	1948.0	5.7	8.4
MST M2 - 24x 24x 201-G	2	6.28	201.0	32	24	24	22												0.8
ZST M3 - 29x 29x 1017-G	3	9.42	1017.9	108	29	29	26	2	63.6	127.23	8	9	10	15	9	34.4	949.1	7.7	6.0
ZST M3 - 29x 29x 2035-G	3	9.42	2035.8	216	29	29	26	2	63.6	127.23	16	9	10	15	9	34.4	1967.0	7.7	12.0
MST M3 - 29x 29x 198-G	3	9.42	198.0	21	29	29	26												1.2
ZST M4 - 39x 39x 1005-G	4	12.57	1005.3	80	39	39	35	3	62.8	125.66	8	12	10	15	9	37.5	930.3	7.7	10.7
ZST M4 - 39x 39x 2010-G	4	12.57	2010.6	160	39	39	35	3	62.8	125.66	16	12	10	15	9	37.5	1935.6	7.7	21.4
MST M4 - 39x 39x 201-G	4	12.57	201.0	16	39	39	35												2.2
ZST M5 - 49x 39x 1005-G	5	15.70	1005.3	64	49	39	34	3	62.8	125.66	8	12	14	20	13	30.1	945.0	11.7	13.1
ZST M5 - 49x 39x 2010-G	5	15.70	2010.6	128	49	39	34	3	62.8	125.66	16	12	14	20	13	30.1	1950.4	11.7	26.2
MST M5 - 49x 39x 204-G	5	15.70	204.0	13	49	39	34												2.7
ZST M6 - 59x 49x 1017-G	6	18.80	1017.9	54	59	49	43	3	63.6	127.23	8	16	18	26	17	31.4	955.0	15.7	20.2
ZST M6 - 59x 49x 2035-G	6	18.80	2035.8	108	59	49	43	3	63.6	127.23	16	16	18	26	17	31.4	1973.0	15.7	40.4
MST M6 - 59x 49x 207-G	6	18.80	207.0	11	59	49	43												4.1
ZST M8 - 79x 79x 1005-G	8	25.10	1005.3	40	79	79	71	3	62.8	125.66	8	25	22	33	21	26.6	952.0	19.7	44.3
ZST M8 - 79x 79x 2010-G	8	25.10	2010.6	80	79	79	71	3	62.8	125.66	16	25	22	33	21	26.6	1957.3	19.7	88.6
MST M8 - 79x 79x 201-G	8	25.10	201.0	8	79	79	71												8.9
ZST M10- 99x 99x 1005-G	10	31.40	1005.3	32	99	99	89	3	62.8	125.66	8	32	33	48	32	125.7	754.0	19.7	68.7
MST M10- 79x 79x 219-G	10	31.40	219.0	7	79	79	69												10.2
ZST M12-120x120x 1017-G	12	37.70	1017.9	27	120	120	108	3	63.6	127.23	8	40	39	58	38	127.2	763.4	19.7	109.0
MST M12- 99x 99x 263-G	12	37.70	263.0	7	99	99	87												19.0

<sup>1)</sup> m module

<sup>3)</sup> n number of holes

<sup>2)</sup> z number of teeth

<sup>4)</sup> p pitch (p=m\*π)

any other length on request



# Standard racks helical tooth system

figure 1

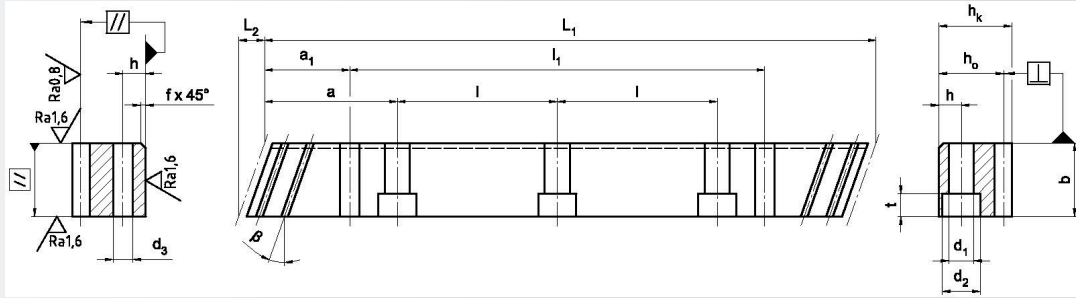


figure 2

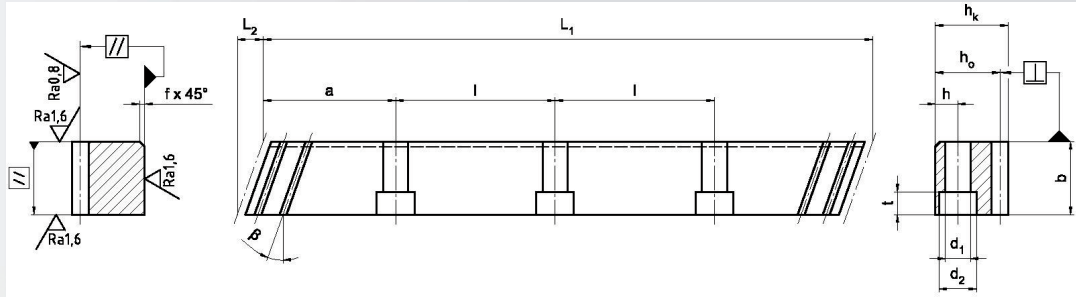
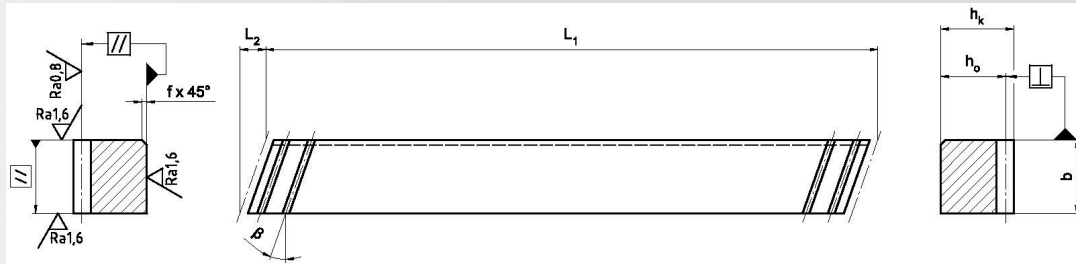


figure 3



Standard lengths	m <sup>1)</sup>	p <sub>s</sub> <sup>4)</sup>	L <sub>1</sub>	L <sub>2</sub>	z <sup>2)</sup>	b	h <sub>k</sub>	h <sub>o</sub>	f	a	l	n <sup>3)</sup>	h	d <sub>1</sub>	d <sub>2</sub>	t	a <sub>1</sub>	l <sub>1</sub>	d <sub>3</sub>	mass
	-	mm	mm	mm	-	mm	mm	mm	mm	mm	mm	-	mm	mm	mm	mm	mm	mm	mm	kg
ZST M2 - 24x 24x 1000-S	2	6.67	1000.0	8.5	150	24	24	22	2	62.5	125.00	8	8	7	11	7	31.7	936.6	5.7	4.1
ZST M2 - 24x 24x 2000-S	2	6.67	2000.0	8.5	300	24	24	22	2	62.5	125.00	16	8	7	11	7	31.7	1936.6	5.7	8.2
MST M2 - 24x 24x 200-SL	2	6.67	200.0	8.5	30	24	24	22												0.8
ZST M3 - 29x 29x 1000-S	3	10.00	1000.0	10.3	100	29	29	26	2	62.5	125.00	8	9	10	15	9	35.0	930.0	7.7	5.9
ZST M3 - 29x 29x 2000-S	3	10.00	2000.0	10.3	200	29	29	26	2	62.5	125.00	16	9	10	15	9	35.0	1930.0	7.7	11.8
MST M3 - 29x 29x 200-SL	3	10.00	200.0	10.3	20	29	29	26												1.2
ZST M4 - 39x 39x 1000-S	4	13.33	1000.0	13.8	75	39	39	35	3	62.5	125.00	8	12	10	15	9	33.3	933.4	7.7	10.7
ZST M4 - 39x 39x 2000-S	4	13.33	2000.0	13.8	150	39	39	35	3	62.5	125.00	16	12	10	15	9	33.3	1933.4	7.7	21.4
MST M4 - 39x 39x 200-SL	4	13.33	200.0	13.8	15	39	39	35												2.2
ZST M5 - 49x 39x 1000-S	5	16.67	1000.0	17.4	60	49	39	34	3	62.5	125.00	8	12	14	20	13	37.5	925.0	11.7	13.0
ZST M5 - 49x 39x 2000-S	5	16.67	2000.0	17.4	120	49	39	34	3	62.5	125.00	16	12	14	20	13	37.5	1925.0	11.7	26.0
MST M5 - 49x 39x 200-SL	5	16.67	200.0	17.4	12	49	39	34												2.7
ZST M6 - 59x 49x 1000-S	6	20.00	1000.0	20.9	50	59	49	43	3	62.5	125.00	8	16	18	26	17	37.5	925.0	15.7	18.1
ZST M6 - 59x 49x 2000-S	6	20.00	2000.0	20.9	100	59	49	43	3	62.5	125.00	16	16	18	26	17	37.5	1925.0	15.7	36.2
MST M6 - 59x 49x 200-SL	6	20.00	200.0	20.9	10	59	49	43												3.8
ZST M8 - 79x 79x 960-S	8	26.67	960.0	28.0	36	79	79	71	3	60.0	120.00	8	25	22	33	21	120.0	720.0	19.7	42.5
ZST M8 - 79x 79x 1920-S	8	26.67	1920.0	28.0	72	79	79	71	3	60.0	120.00	16	25	22	33	21	120.0	1680.0	19.7	85.0
MST M8 - 79x 79x 213-SL	8	26.67	213.3	28.0	8	79	79	71												8.9
ZST M10- 99x 99x 1000-S	10	33.33	1000.0	35.1	30	99	99	89	3	62.5	125.00	8	32	33	48	32	125.0	750.0	19.7	68.7
MST M10- 99x 99x 233-SL	10	33.33	233.3	35.1	7	99	99	89												10.2
ZST M12-120x 120x 1000-S	12	40.00	1000.0	42.6	25	120	120	108	3	40.0	125.00	8	40	39	58	38	125.0	750.0	19.7	111.0
MST M12- 99x 99x 280-SL	12	40.00	280.0	42.6	7	99	99	87												20.9

<sup>1)</sup> m module

<sup>3)</sup> n number of holes

any other length on request

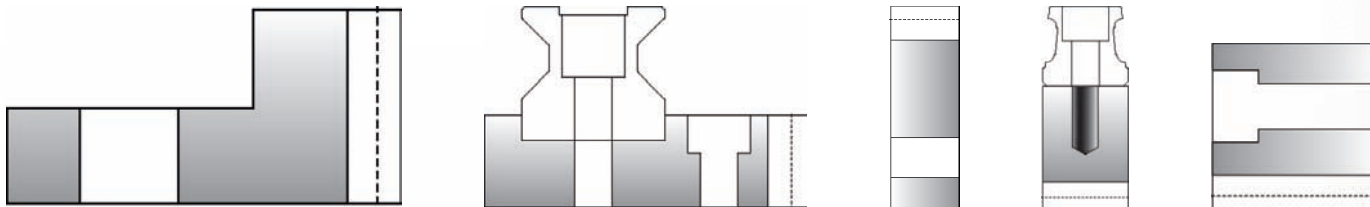
<sup>2)</sup> z number of teeth

<sup>4)</sup> p<sub>s</sub> reference-pitch (p<sub>s</sub>=m\*π/cos β) β=19.5283°



## Customized racks

Within the below listed specifications any gear rack and gear rack guideway can be produced according to customer drawing.



## Specifications

### Toothing system

<b>modular</b>	1, 1.5, 2 ... 16
<b>metric</b>	5, 10mm
<b>pitch</b>	$p = m \cdot \pi$
<b>reference pitch</b>	$p_s = m \cdot \pi / \cos \beta$
<b>helical</b>	right hand 19,5283° (19°31'42")
<b>pressure angle</b>	20°

### Hardness / material / length

hardness teeth	material	hardness	max. length
		HRc	mm
<b>weak</b>	C45	-	3000
<b>induction hardened</b>			
<b>module 1...4</b>	C45	50...55	3000
<b>module &gt; 4</b>	C45	55 <sup>+3</sup>	3000
<b>case hardened</b>	16MnCr5	58 <sup>+3</sup>	2000

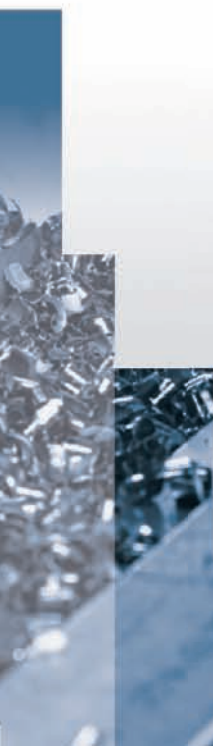
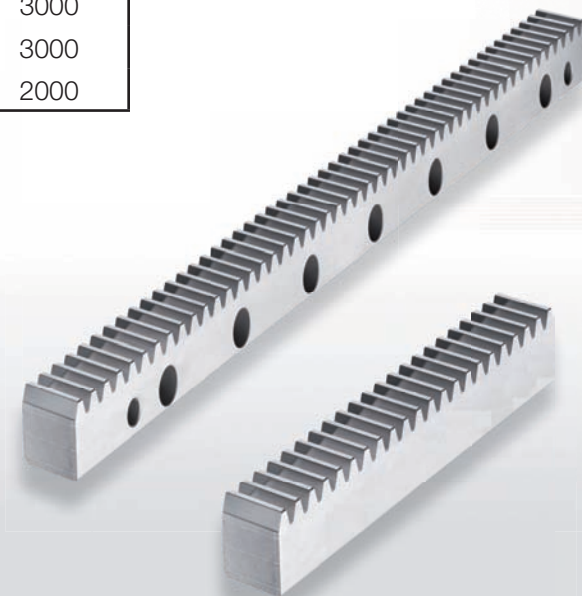
### Quality according to DIN 3962, 3963, 3967

grade	$f_p$ <sup>1)</sup>	$F_p/300\text{mm}$ <sup>2)</sup>
	mm	mm
5 <sup>3)</sup>	0.006	0.020
6	0.008	0.025
9		0.070
10		0.100

<sup>1)</sup> individual adjacent pitch error (tooth to tooth)

<sup>2)</sup> cumulative pitch error over a length of 300mm

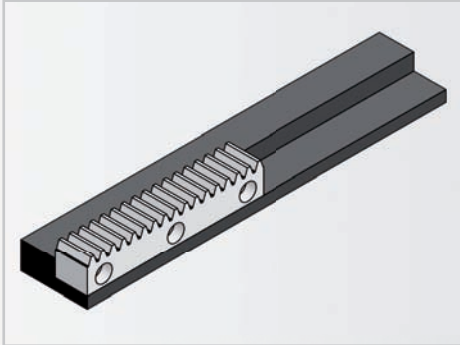
<sup>3)</sup> on request





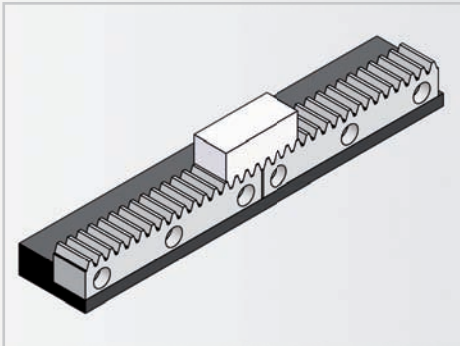
## Assembly

Racks can be mounted to any length.  
During assembly the gap between 2 racks has to fit the pitch of the teeth.  
For racks shorter than 1m dowel pins have to be used.



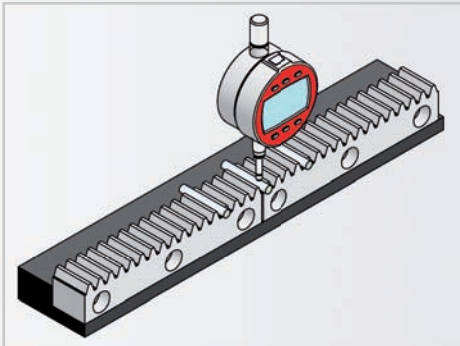
Positioning and tightening of the rack.

Torque depends on friction coefficient and grade of screw.



Positioning of next rack using mounting tool.

Tightening of the next rack.



Checking on the connection from one rack to another.

Checking on the parallelism of the racks.

If necessary bring in the pins.



## Order description

### Standard racks

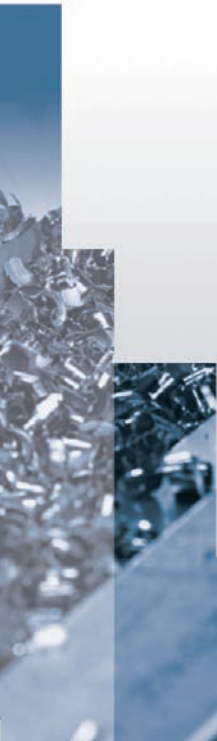
				___	ZST	M6	- 59x49x1000	-S	-I	-6	-D
quantity											
type	ZST										
tooth system	M ___	modular									
	T ___	metric, in mm									
dimensions	$h_k \times b \times L_1$	in mm									
tooth system	S	helical right hand, 19.5283°									
	G	straight									
hardness teeth	I	induction hardened									
	C	case hardened									
	W	weak									
grade	6	ground									
	9	milled, weak									
	10	milled, hardened									
drillings	D	with pin- and fixing holes									figure 1
	OP	without pin-holes									figure 2
	OH	without holes									figure 3

### Mounting tool

				___	MST	M6	- 59x49x1000	-SL
quantity								
type	MST							
tooth system	M ___	modular						
	T ___	metric, in mm						
dimensions	$h_k \times b \times L_1$	in mm						
tooth system	SL	helical left hand, 19.5283°						
	G	straight						

### Customized racks

				___	ZST	M7	- 60x50x1820	-S	-I	-6	-D	-spez
quantity												
type	ZST											
tooth system	M ___	modular										
	T ___	metric, in mm										
dimensions	$h_k \times b \times L_1$	in mm										
tooth system	S	helical left hand, 19.5283°										
	G	straight										
hardness teeth	I	induction hardened										
	C	case hardened										
	W	weak										
grade	6	ground										
	9	milled, weak										
	10	milled, hardened										
drillings	D	with pin- and fixing holes										figure 1
	OP	without pin-holes										figure 2
	OH	without holes										figure 3
specialities	spez	with specialities according drawing										



# SCHNEEBERGER Representatives and Agencies

## Europe

### AUSTRIA

Haberkorn  
Antriebstechnik  
Modecenterstr. 7  
1030 Wien

Phone +43 174 074 0

Fax +43 174 074 1389  
E-Mail:  
info.wien@haberkorn.com

### BOSNIA/HERZEGOVINA/ SLOVENIA/SERBIA/ MONTENEGRO

Haberkorn  
ULMER d.o.o.  
Vodovodna ul. 7  
2000 Maribor

Phone +386 2 320 67 10

Fax +386 2 320 67 30  
E-Mail:  
info@ulmer.si

### BULGARIA

Atlas Technik EOOD  
BG-1612 Sofia, PK 51  
Bulgaria  
Hippodroma, Bl.139B,  
Eing.A, App.6

Phone +359 2 859 76 81  
Mobile +359 885 232 595

Fax +359 2 859 76 81  
E-Mail:  
al\_popoff@techno-link.com

### CROATIA/HRVATSKA

HABERKORN Ulmer CRO d.o.o.  
Dr. Franje Tudmana 16  
10431 Sveta Nedelja  
Croatia

Phone +01 3335 870

Fax +01 3373 902  
E-Mail:  
info@haberkorn.hr

### DENMARK

HERSTAD + PIPER A/S  
Jernholmen 48c  
2650 Hvidovre

Phone +45 36 77 40 00

Fax +45 36 77 77 40  
E-Mail:  
mail@herstad-piper.dk

### FRANCE

Baret  
16-20 rue des Frères  
Bertrand  
69632 Vénissieux

Phone +33 478 773 232

Fax +33 478 009 000  
E-Mail:  
baret@baret.fr

Axmo Précision  
ZI de la Moirerie  
Rue du Roussillon  
91222 Brétigny sur Orge

Phone +33 160 849 075

Fax +33 160 853 155  
E-Mail:  
info@axmo.fr

### FINLAND

EIE Maskin Oy  
PL, 80 Asematie 1  
10601 Tammisaari

Phone +358 19 223 91 00

Fax +358 19 223 91 99  
E-Mail:  
info@eie.fi

### GERMANY

Fröhlich & Dörken GmbH  
Stefansbecke 44  
45549 Sprockhövel

Phone +49 2339 1230

Fax +49 2339 1230  
E-Mail:  
antriebstechnik@fud.de

### HUNGARY

Brammer Magyarország Kft.  
Pesti út 89  
2700 Cegléd

Phone +36 535 000 41

Fax +36 535 001 67  
E-Mail:  
office@brammer.hu

Brammer Magyarország Kft.  
Mészáros L. u. 13  
Győr, 9023

Phone +36 96 516-0

Fax +36 96 516-281  
E-Mail:  
office@brammer.hu

### NETHERLANDS

Stamhuis  
LINEAIRTECHNIEK B.V  
Postbus 84  
Wetering straat 9  
NL-7390 AB Twello

Phone +31 571 27 20 10

Fax +31 571 27 29 90  
E-Mail:  
info@stamhuislineair.nl

### NORWAY

Elmeco AS  
Tvetenveien 164  
0671 Oslo

Phone +47 67 57 22 70

Fax +47 67 57 22 80  
E-Mail:  
elmeko@elmeko.no

### POLAND

TECHNIKA LINIOWA  
ROLLICO Rolling  
Components Sp.j.  
Ul. Cegielniana 21  
42-700 Lubliniec

Phone +48 34 351 04 30

Fax +48 34 351 04 31  
E-Mail:  
info@rollico.com

### ROMANIA

Theodor Trufasu  
4, Burebista Blvd.  
031108 Bucharest

Phone +40 21 3166843/44

Mobile +40 744580544  
Fax +40 21 3166846  
E-Mail:  
info@rollico.com

### SLOVAKIA

KBM, s.r.o.  
Žitná 13  
010 04 Žilina

Phone +421 41 707 03 36

Mobile +421 90 525 37 21  
Fax +421 41 707 03 33  
E-Mail:  
dsukala@kbn.sk

### SPAIN

Brammer Iberia  
Almacén Central (C.A.D.)  
Plat. D-152 Pab. 1 Pol  
Ind. Erlxte  
48960 Galdacano, Vizcaya

Phone +34 944 879 400

Fax +34 944 579 420  
E-Mail:  
cperez@rodause.com

### SWEDEN

EIE Maskin AB  
Box 13031  
402 51 Goeteborg

Phone +46 31 707 4800

Fax +46 31 195 255  
E-Mail:  
eie@eie.se

### TURKEY

BIRLIK RULMAN PAZ.LTD.STI.  
Muhane Cad. No:16  
80030 Karakoy-Istanbul

Phone +90 212 249 54 95

Fax +90 212 244 21 40  
E-Mail:  
birlik@birlikrulman.com

## Asia

### TAIWAN

Ever Bright Precision Ltd.  
1F, nr. 52,  
Lane 10 Chi-hu Road  
114 Taipei  
Taiwan, Republic of China

Phonel +886 2 2659 5586

Fax +886 2 2659 5587  
E-Mail:  
sales@everbright.com.tw

### SINGAPORE/INDONESIA THAILAND/MALAYSIA

Servo Dynamics  
Kaki Bukit Road 1 No. 10  
#01-30 Kaki Bukit Park  
416175 Singapore

Phone +65 6844 0288

Fax +65 6844 0070  
E-Mail:  
servodynamics@servo.com.sg

### KOREA

LIATO Korea Inc.  
12-15, Moonhyung-Ri, Opo-  
Eup  
Kwangjuo-City  
464-894 Kyonggi-Do

Phone +82 31 766 1434(6)

Fax +82 31 766 1438  
E-Mail:  
limwos@kornet.net

Jeda Industries Ltd.  
640-12, Gojan-dong  
Namdong-Gu (Namdong  
Ind, Zone 71B-13L)  
Incheon

Phone +82 32 7220 155

Fax +82 32 8219 502  
E-Mail:  
luboinc@luboinc.co.kr

NUMACS Corporation Ltd.  
Rm303, Namdong building, 987-11  
Mansu-dong, Namdung-ku  
405-204 Incheon

Phone +82 32 461 81 10

Fax +82 32 461 81 12  
E-Mail:  
casypark@unitel.co.kr

INTECH Automation Inc.  
FL 13,94-46, Youngdeungpo  
7-Ga  
Youngdeungpo-Ku  
150-037 Seoul

Phone +82 2 2632 6770

Fax +82 2 2632 6880  
E-Mail:  
intech01@kornet.net

## South America

### ARGENTINIA/BOLIVIA/BRAZIL/CHILE/COLUMBIA/ECUADOR/ PARAGUAY/PERU/URUGUAY/VENEZUELA

IBATECH TECNOLOGIA LTDA.  
Av. Amazonas, 976  
90240 542 Porto Alegre RS  
Brazil

Phone +55 51 3337 1481

Fax +55 51 3337 5265  
E-Mail:  
ibacorp@iba-corp.com

### AUSTRALIA/ NEW ZEALAND

RJM Engineering Supplies  
Tamar Street 13  
VIC 3134 Ringwood

Phone +61 398 79 4881

Fax +61 398 79 3700  
E-Mail:  
rjmeng@rjmeng.com.au

### SOUTH AFRICA

Fischli & Fuhrmann Ltd.  
P.O.Box 253  
1600 Isando Transval

Phone +27 11 974 5571

Fax +27 11 974 5574  
E-Mail:  
info@servodynamics.com.cn

LIATO S A (PTY) LTD  
513 Wrenford Place  
Hillary  
4094 Durban

Phone +27 31 464 5500

Fax +27 31 464 1255  
E-Mail:  
liatorr@telkomsa.net

## Australia / New Zealand / South Africa



**CATALOGUES**

MONORAIL and AMS  
LINEAR BEARINGS and Recirculating units  
SLIDES  
MINIRAIL  
AUTOMATION



**BROCHURES**

MINISLIDE  
MINIMODULE  
SYSTEMS  
MINERAL CASTING  
SPECIAL-COMPONENTS



**SCHNEEBERGER COMPANIES**

**SWITZERLAND**

SCHNEEBERGER AG  
St. Urbanstrasse 12  
4914 Roggwil/BE

Phone+41 62 918 41 11  
Fax +41 62 918 41 00

E-Mail:  
info-ch@schneeberger.com  
[www.schneeberger.com](http://www.schneeberger.com)

**GERMANY**

SCHNEEBERGER GmbH  
Gräfenau  
75339 Höfen/Enz

Phone+49 7081 782 0  
Fax +49 7081 782 124

E-Mail:  
info-d@schneeberger.com

**ITALY**

SCHNEEBERGER S.r.l.  
Piazza Aldo Moro, 2  
21018-Sesto Calende (VA)

Phone+39 0331 93 2010  
Fax +39 0331 93 1655

E-Mail:  
info-i@schneeberger.com

**USA**

SCHNEEBERGER Inc.  
11 DeAngelo Drive  
Bedford, MA 01730

Phone+1 781 271 0140  
Fax +1 781 275 4749

E-Mail:  
info-usa@schneeberger.com

**CHINA**

SCHNEEBERGER (Shanghai) Co., Ltd.  
Rm 606, Sheng Gao International Building C  
No. 137 XianXia Road  
200051 Shanghai

Tel. +86 21 6209 0027 / 37  
Fax +86 21 6209 0102

E-Mail:  
info-cn@schneeberger.com

**JAPAN**

Nippon SCHNEEBERGER K.K.  
Shimouma Miyagawa Bld 4F  
1-49-12 Shimouma  
154-0002 Tokyo  
Phone+81 3 5779 7339  
Fax +81 3 3487 6010

E-Mail:  
info-j@schneeberger.com

**INDIA**

SCHNEEBERGER India Private  
Limited  
Dhannur, 2nd Floor 15 Sir P M  
Road, Fort 400 001 Mumbai  
Phone+91 22 2263 2372  
Fax +91 22 2263 2371

E-Mail:  
info-in@schneeberger.com

**SCHNEEBERGER MINERAL CASTING**

**CZECH REPUBLIC**

SCHNEEBERGER Mineralgusstechnik s.r.o  
Prumyslový park 32/20  
350 02 Cheb – Dolní Dvory

Phone+420 354 400 941  
Fax +420 354 400 940

E-Mail:  
info-mineralguss@schneeberger.com

**SCHNEEBERGER FIELD SALES**

**AUSTRIA**

Mobile+43 67 6935 1035

E-Mail:  
info-a@schneeberger.com

**BELGIUM, THE NETHER-  
LANDS, LUXEMBOURG**

Mobile+31 6 5326 3929

E-Mail:  
info-nl@schneeberger.com

**DENMARK, SWEDEN**

Mobile+31 6 5326 3929

E-Mail:  
info-nl@schneeberger.com

**FRANCE**

Mobile +33 6 0941 6269

E-Mail:  
info-f@schneeberger.com

**GREAT BRITAIN**

Mobile+44 77 8814 5645

E-Mail:  
info-uk@schneeberger.com

**ISRAEL**

Mobile+972 5 0551 7920

E-Mail:  
info-il@schneeberger.com

**KOREA**

Mobile+82 1 6202 0971

E-Mail:  
info-k@schneeberger.com

**POLAND, SLOVAKIA,  
CZECH REPUBLIC**

Mobile+420 6 0278 4077

E-Mail:  
info-cz@schneeberger.com

**RUSSIA,  
BELARUS, UKRAINE**

Mobile +7 985 960 85 53  
Mobile +38 050 407 6789  
Mobile +37 529 860 0410

E-Mail:  
dmitri.kozlov@schneeberger.com

**SPAIN, PORTUGAL**

Mobile+34 6 4991 9740

E-Mail:  
info-es@schneeberger.com