

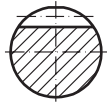
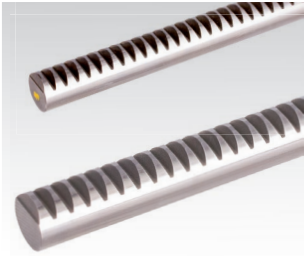
Overview Gear Racks

Square gear racks with straight teeth



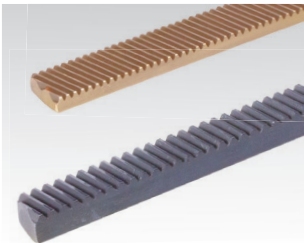
Material/Version	Module	Page
Acetal resin, die cast	0,5-3,0	256
POM, milled	0,5-3,0	256
Brass, milled	0,3-1,0	257
Steel, milled quality 8	0,5-8,0	258
Steel, milled quality 9	1,0-6,0	259
Steel, teeth hardened	2,0-5,0	259
Steel, hardened and ground	1,0-3,0	260
Stainless steel, milled	1,0-4,0	261
Steel and stainless steel, metric pitch	1,59/3,18 (5mm/10mm)	262

Round gear racks with straight teeth



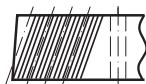
Material/Version	Module	Page
Steel, milled	1,0-6,0	263
High strength steel, milled	1,0-6,0	263
Stainless steel, milled	1,0-4,0	263
Steel and stainless steel, metric pitch	1,59/3,18 (5mm/10mm)	262

Helical tooth gear racks, square, left hand



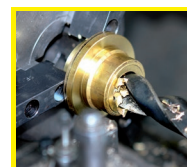
Material/Version	Module	Page
Brass, milled	0,3-0,5	257
Steel, milled	1,0	257

Helical tooth gear racks, square, right hand



Material/Version	Module	Page
Steel, milled, tempered	2,0-5,0	264
Steel, hardened and ground	2,0-5,0	265

Spur gears
Page 194

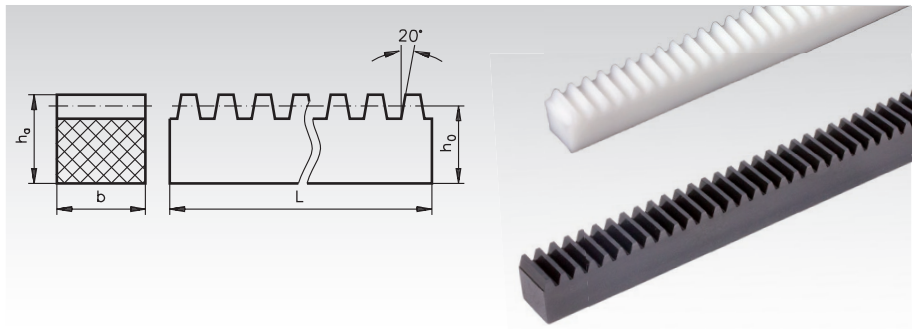


Reworking within
24h-service possible.
Custom made parts
on request.

Gear Racks Made from Plastic, Straight Tooth System

Because of the material used, plastic gear racks are not straightened.

Material reference values page 821.



Ordering Details: e.g.: Product No. 291 601 00, Gear Rack, Delrin, Module 0.5, 4x6x250 mm

Gear Racks Made from Acetal Resin, White, Die-Cast Version

Pressure angle 20°, Nominal length 250 mm*

	Product No.	b mm	h_a mm	h_0 mm	Nominal Length L* mm	Weight g
Module 0.5	281 601 00	4	4,5	4	250	6
	281 602 00	4	6	5,5	250	8
Module 0.7	282 601 00	6	6,7	6	250	13
Module 1.0	283 601 00	9	9	8	250	25
Module 1.25	284 601 00	10	11	9,75	250	34
Module 1.5	285 601 00	12	12	10,5	250	43
Module 2.0	286 601 00	15,4	11	9	250	44
Module 3.0	288 601 00	19,4	15	12	250	76

Gear Racks Made from POM, White, Milled Teeth, Slim Version

Material: POM, white (nature)

Pressure angle 20°.

The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances.

Dimensions h_a and h_0 up to Module 2: -0.2 mm from Module 2.5: -0.3 mm.

From Module 2, except for nominal length 500 mm, cut for continuous linking.

** Material PET.

	Product No.	b mm	h_a mm	h_0 mm	Nominal Length L* mm	Weight g
Module 0.5**	291 601 00**	4	6	5,5	250	8
Module 0.7	292 601 00	5	7	6,3	250	11
Module 1.0	293 601 00	10	10	9,0	250	32
	293 603 00	10	10	9,0	500	63
Module 1.25	294 601 00	10	10	8,75	250	31
	294 603 00	10	10	8,75	500	61
Module 1.5	295 601 00	15	15	13,5	250	72
	295 603 00	15	15	13,5	500	140
	295 605 00	15	15	13,5	1000	285
Module 2.0	296 603 00	16	16	14,0	500	157
	296 605 00	16	16	14,0	1000	312
	296 607 00	16	16	14,0	1500	466
Module 2.5	297 603 00	20	20	17,5	500	243
	297 605 00	20	20	17,5	1000	489
	297 607 00	20	20	17,5	1500	735
Module 3.0	298 603 00	25	25	22,0	500	385
	298 605 00	25	25	22,0	1000	772
	298 607 00	25	25	22,0	1500	1146

Gear Racks Made from POM, White or Black, Milled Teeth

Material: POM, on choice white (nature) or black.

Pressure angle 20°.

The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances.

Dimensions h_a and h_0 up to Module 2: -0.2 mm from Module 2.5 to 3: -0.3 mm.

Module 2, nominal length 1000 mm, and from module 3, the racks are cut for continuous linking.

	Product No. White	Product No. Black	b mm	h_a mm	h_0 mm	Nominal Length L* mm	Weight g
Module 1.0	293 116 01	293 117 01	15	15	14,0	250	75
	293 116 03	293 117 03	15	15	14,0	500	149
	293 116 05	293 117 05	15	15	14,0	1000	300
Module 1.5	295 116 01	295 117 01	17	17	15,5	250	92
	295 116 03	295 117 03	17	17	15,5	500	186
	295 116 05	295 117 05	17	17	15,5	1000	400
Module 2.0	296 116 01	296 117 01	20	20	18,0	250	127
	296 116 03	296 117 03	20	20	18,0	500	254
	296 116 05	296 117 05	20	20	18,0	1000	500
Module 2.5	297 116 01	297 117 01	25	25	22,5	250	198
	297 116 03	297 117 03	25	25	22,5	500	397
	297 116 05	297 117 05	25	25	22,5	1000	800
Module 3.0	298 116 01	298 117 01	30	30	27,0	250	400
	298 116 03	298 117 03	30	30	27,0	500	800
	298 116 05	298 117 05	30	30	27,0	1000	1600

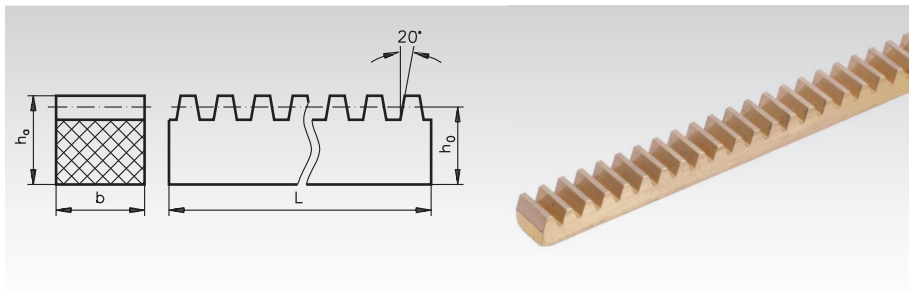
* The real length is roughly one multiple of the pitch.

Gear Racks Made from Brass (Ms58), Straight Tooth System, Precisely Straightened

Pressure angle 20°.

The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances

Dimension h_a and $h_0 = -0.2$ mm



The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances, Dimension h_a and h_0 up to Module 2 -0.2 mm.

Ordering Details: e.g.: Product No. 260 601 00, Straight-Toothed Gear Rack, Module 0.3, 250 mm

Teeth cut with reference profile (RP) II in accordance with DIN 867/DIN 3972.

	Product No.	b mm	h_a mm	h_0 mm	Nominal Length L* mm	Weight g
Module 0.3	260 601 00	2	4	3,7	250	14
Module 0.5	261 601 00	2	4	3,5	250	14
Module 0.7	262 601 00	4	6	5,3	250	42
Module 1.0	263 600 00	7	5	4,0	250	56
	263 601 00	10	8	7,0	230**	131
	263 603 00	10	10	9,0	250	184
	263 605 00	10	10	9,0	500	371

* The real length is roughly one multiple of the pitch.

** Special length.

Gear Racks Made from Brass (Ms58) and Steel (C45KG), Helical Toothed, Precisely Straightened

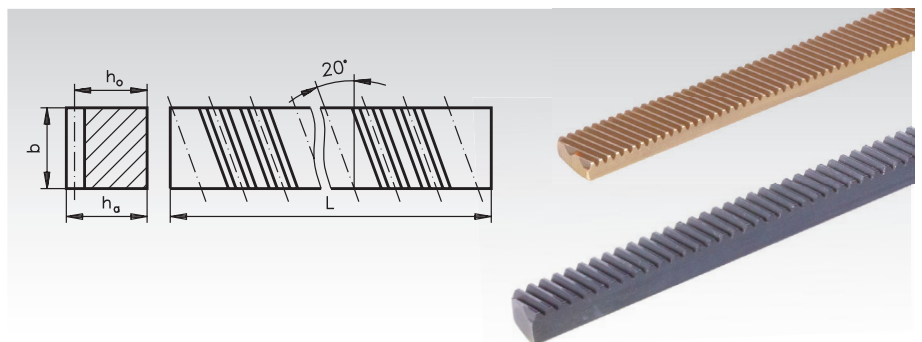
20° helical tooth system, left-toothed.
Pressure angle 20°.

The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances.

Dimensions h and $h_0 = -0.2$ mm.

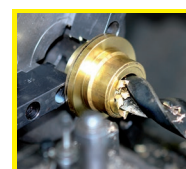
The standardised left-toothed gear racks always need to be matched with a right-toothed pinion.

Ordering Details: e.g.: Product No. 269 601 00, Helical Toothed Gear Rack, Module 0.3, 250 mm



	Product No.	Material	b mm	h_a mm	h_0 mm	L mm	Weight g
Module 0.3	269 601 00	Ms58	5	3	2,7	250	29
Module 0.5	269 605 00	Ms58	10	4	3,5	250	70
	269 606 00	Ms58	10	4	3,5	500	139
Module 1.0	224 655 00	C45KG	10	10	9,0	500	344
	224 658 00	C45KG	10	10	9,0	1000	685

Matching helical-toothed spur gears see page 251.



Reworking within
24h-service possible.
Custom made parts
on request.

Gear Racks Made from Specially Treated Bright Steel C45KG, Milled Teeth, Straight Tooth System

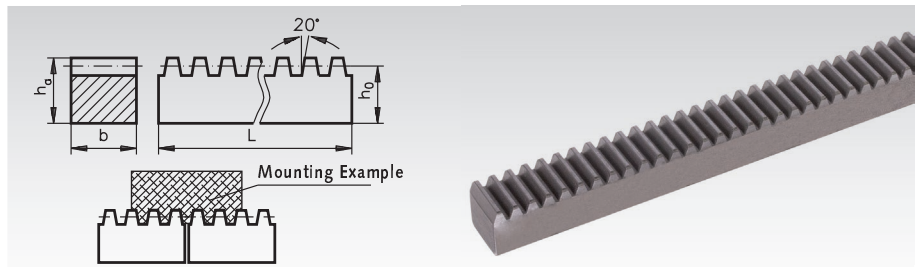
Tooth quality 8d25
modelled on DIN 3962, 3967, 3968.
Pressure angle 20°. Precisely Straightened.
Cross-section tolerance $h_{11} = -1/10$ to $2/10$ depending on size.

All gear racks from **Module 2**, except for **nominal length 500 mm**, are cut off for **continuous linking**.

The teeth of the gear racks are not cut to join edge-to-edge, which leads to minor gaps when mounting. These gaps do, however, not cause any problems for the gears rolling across.

Total pitch error page 261.

Ordering Details: e.g.: Product No. 224 603 00, Gear Rack, C45KG, Module 1.0, 250 mm.



The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances. Dimensions h_a and h_0 up to Module 2 -0.2 mm, Module 2.5-4 -0.3 mm, Module 5-8 -0.4 mm

Teeth cut with reference profile (RP) II in accordance with DIN 867/DIN 3972.
Rounded edge at square bar of 15 up to 60 mm.
Chamfered edge at square bar of 80 mm

* Key Steel.
** St37K.

	Product No.	Tooth Width b mm	Overall Height h_a mm	h_0 mm	Nominal Length L mm	Effective Length mm	Weight kg
Module 0.5*	221 601 00	4	6	5,5	250	-	0,04
Module 0.7**	222 601 00	5	7	6,3	250	-	0,06
Module 1.0**	223 601 00	7	5	4,0	250	-	0,05
Module 1.0	224 603 00	10	10	9,0	250	-	0,17
	224 605 00	10	10	9,0	500	-	0,34
	224 608 00	10	10	9,0	1000	-	0,68
	224 610 00	15	15	14,0	500	-	0,81
	224 612 00	15	15	14,0	1000	-	1,61
Module 1.25	226 601 00	10	10	8,75	250	-	0,16
	226 603 00	10	10	8,75	500	-	0,33
	226 605 00	10	10	8,75	1000	-	0,66
Module 1.5	227 601 00	10	10	8,5	500	-	0,32
	227 605 00	10	10	8,5	1000	-	0,63
	228 601 00	15	10	8,5	1000	-	0,95
	228 603 00	15	15	13,5	500	-	0,77
	228 605 00	15	15	13,5	1000	-	1,54
	228 607 00	15	15	13,5	1500	-	2,33
Module 2.0	241 601 00	16	20	18,0	1000	1005,0 - 1	2,22
	241 603 00	20	20	18,0	500	-	1,38
	241 605 00	20	20	18,0	1000	1005,0 - 1	2,77
	241 607 00	20	20	18,0	1500	1501,0 - 1	4,12
	241 609 00	20	20	18,0	2000	2004,0 - 1,5	5,50
Module 2.5	242 601 00	20	25	22,5	1000	1005,0 - 1	3,47
	242 603 00	25	25	22,5	500	-	2,17
	242 605 00	25	25	22,5	1000	1005,0 - 1	4,31
	242 607 00	25	25	22,5	1500	1507,5 - 1	6,46
	242 609 00	25	25	22,5	2000	2002,5 - 1,5	8,61
Module 3.0	243 601 00	25	30	27,0	1000	1008,0 - 1,5	5,24
	243 603 00	30	30	27,0	500	-	3,17
	243 605 00	30	30	27,0	1000	1008,0 - 1,5	6,27
	243 607 00	30	30	27,0	1500	1507,5 - 1,5	9,33
	243 609 00	30	30	27,0	2000	2007,0 - 1,5	12,43
Module 4.0	244 601 00	30	40	36,0	1000	1005,0 - 1,5	8,43
	244 603 00	40	40	36,0	500	-	5,55
	244 605 00	40	40	36,0	1000	1005,0 - 1,5	11,14
	244 607 00	40	40	36,0	1500	1507,5 - 1	16,50
	244 609 00	40	40	36,0	2000	2010,0 - 1,5	22,50
Module 5.0	245 601 00	40	50	45,0	1000	1005,0 - 1,5	14,00
	245 603 00	50	50	45,0	500	-	8,50
	245 605 00	50	50	45,0	1000	1005,0 - 1,5	17,50
	245 607 00	50	50	45,0	1500	1507,5 - 1,5	26,00
	245 609 00	50	50	45,0	2000	2010,0 - 1,5	35,00
Module 6.0	246 601 00	60	60	54,0	500	-	12,50
	246 603 00	60	60	54,0	1000	998,5 - 1,5	25,00
	246 605 00	60	60	54,0	1500	1507,5 - 1,5	37,50
	246 607 00	60	60	54,0	2000	1997,5 - 1,5	50,00
Module 8.0	248 601 00	80	80	72,0	1000	1005,0 - 1,5	44,00
	248 603 00	80	80	72,0	1500	1507,0 - 1,5	66,00

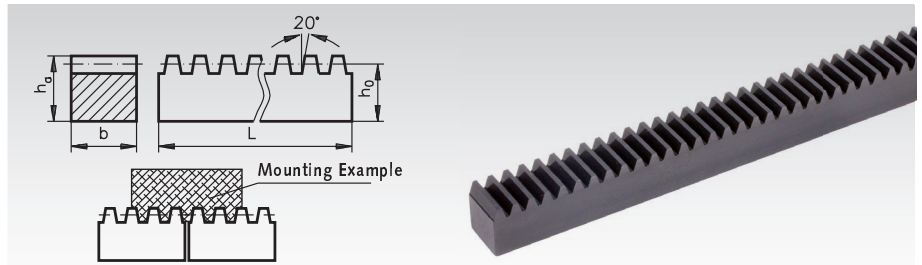
Gear Racks Made from Steel C43, Milled Teeth, Straight Tooth System

Material: Steel C43, burnished.

Tooth quality 9.

Pressure angle 20°.

From Module 2.5 cut for continuous linking.



Ordering Details: e.g.: Product No. 224 116 08, Gear Rack, C43, Module 1.0, 1000 mm

	Product No.	b mm	h_a mm	h_0 mm	Nominal Length L mm	Weight kg
Module 1.0	224 116 08	10	10	9,0	1000	0,68
	224 116 09	10	10	9,0	2000	1,36
	224 116 12	15	15	14,0	1000	1,61
	224 116 19	15	15	14,0	2000	3,32
Module 1.5	228 116 05	15	15	13,5	1000	1,54
	228 116 09	15	15	13,5	2000	3,09
	228 116 12	17	17	15,5	1000	2,05
Module 2.0	241 116 05	20	20	18,0	1000	2,77
	241 116 09	20	20	18,0	2000	5,54
	242 116 05	25	25	22,5	1000	4,35
Module 2.5	242 116 09	25	25	22,5	2000	8,70
	243 116 05	30	30	27,0	1000	6,27
Module 3.0	243 116 09	30	30	27,0	2000	12,54
	244 116 05	40	40	36,0	1000	11,10
Module 4.0	244 116 09	40	40	36,0	2000	22,20
	245 116 05	50	50	45,0	1000	17,50
Module 5.0	245 116 09	50	50	45,0	2000	35,00
	246 116 05	60	60	54,0	1000	24,60
Module 6.0	246 116 09	60	60	54,0	2000	49,20

Gear Racks Made from Bright Steel C45KG, Teeth Milled and Induction Hardened

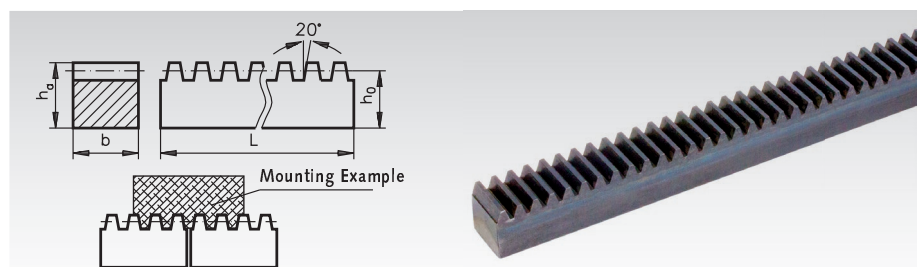
Milled, quality 8.

Tooth area induction hardened, 54 + 4 HRC.

The hardening sets the tooth quality to 10-11.

Pressure angle 20°.

The gear racks are **cut for continuous linking**. The teeth of the gear racks are not cut to join edge-to-edge, which leads to minor gaps when mounting. These gaps do, however, not cause any problems for the gears rolling across.



The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances. Dimensions h_a and h_0 up to Module 2 -0.2 mm, Module 3-4 -0.3 mm, Module 5 -0.4 mm

Ordering Details: e.g.: Product No. 241 886 05, Gear Rack, Module 2.0, 1000mm, hardened

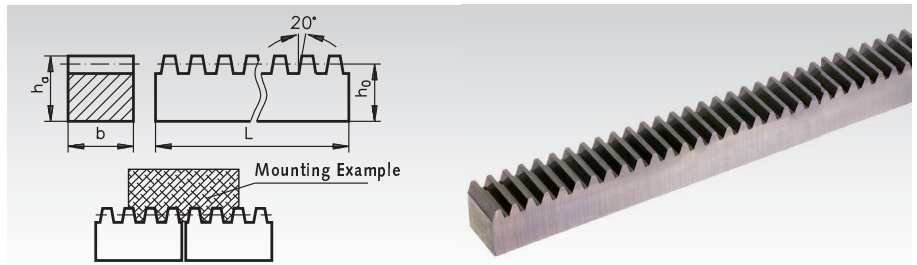
Teeth cut with reference profile (RP) II in accordance with DIN 867/DIN 3972. Rounded edge.

	Product No.	Tooth Width b mm	Overall Height h_a mm	h_0 mm	Nominal Length L mm	Effective Length mm	Weight kg
Module 2.0	241 886 05	20	20	18,0	1000	1005,0 - 1	2,77
	241 886 09	20	20	18,0	2000	2004,0 - 1,5	5,50
Module 2.5	242 886 05	25	25	22,5	1000	1005,0 - 1,	4,31
	242 886 09	25	25	22,5	2000	2002,5 - 1,5	8,61
Module 3.0	243 886 05	30	30	27,0	1000	1008,0 - 1,5	6,27
	243 886 09	30	30	27,0	2000	2007,0 - 1,5	12,43
Module 4.0	244 886 05	40	40	36,0	1000	1005,0 - 1,5	11,14
	244 886 09	40	40	36,0	2000	2010,0 - 1,5	22,50
Module 5.0	245 886 05	50	50	45,0	1000	1005,0 - 1,5	17,50
	245 886 09	50	50	45,0	2000	2010,0 - 1,5	35,00

Precision Gear Racks Made from Steel 16MnCr5, Tooth Area Induction Hardened, Teeth Ground

Tooth quality 7h25.
 Pressure angle 20°.
 Tooth area induction hardened,
 HRC 58±2.
 Ground all around including teeth.

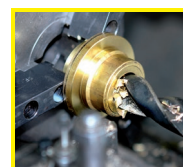
From Module 1.5 cut for continuous linking.
 Angle accuracy 0.02 mm,
 Parallelism on 500 mm = 0.03 mm,
 on 1000 mm = 0.05 mm,
 Tolerance to h_0 line
 on 500 mm = 0.03 mm,
 on 1000 mm = 0.05 mm.
 The width is machined with a tolerance of 0.05.



Ordering Details: e.g.: Product No. 224 683 00, Gear Rack, Steel 16MnCr5, Module 1.0, 500 mm long, Teeth Ground

	Product No.	Tooth Width b mm	Overall Height $h_a^{-0.1}$ mm	Height to Line h_0 mm	Nom. Length L mm	Eff. Length mm	Weight kg
Module 1.0	224 683 00	15	15	14	500	500,0 ⁺¹	0,81
Module 1.5	228 683 00	15	15	13,5	500	499,1 ^{±0,3}	0,78
Module 2.0	241 683 00	20	20	18	500	502,1 ^{±0,3}	1,40
	241 685 00	20	20	18	1000	998,5 ^{±0,3}	2,53
Module 3.0	243 683 00	25	25	22	500	498,9 ^{±0,3}	2,12
	243 685 00	25	25	22	1000	998,4 ^{±0,3}	4,22

*Matching Precision
 Spur Gears
 Page 242*



**Reworking within
 24h-service possible.
 Custom made parts
 on request.**

Gear Racks Made from Stainless Steel (Stainless), Milled Teeth, Straight Tooth System

Material: Stainless steel 1.4305



Tooth quality

8d25 modelled on DIN 3967.

Pressure angle 20°. Precisely Straightened.

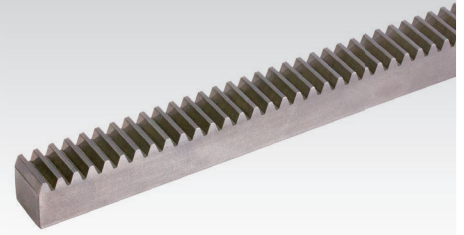
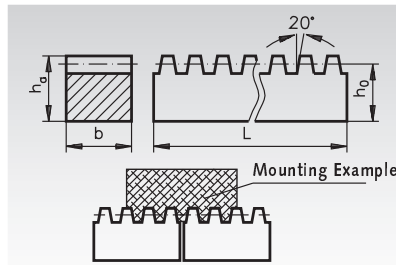
From Module 2, except for nominal length 500 mm, cut for continuous linking.

The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances.

Dimensions h_a and h_o :

up to Module 2 -0.2 mm

Module 2.5 - 4 -0.3 mm



Ordering Details: e.g.: Product No. 224 996 05, Gear Rack, Module 1, 10 x 10x 500, Stainless

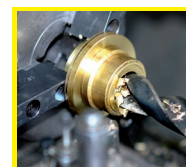
	Product No.	Tooth Width b mm	Overall Height h_a mm	h_o mm	Nominal Length L mm	Effective Length mm	Weight kg
Module 1.0	224 996 05	10	10	9,0	500	-	0,34
	224 996 08	10	10	9,0	1000	-	0,68
Module 1.5	228 996 03	15	15	13,5	500	-	0,77
	228 996 05	15	15	13,5	1000	-	1,55
	228 996 07	15	15	13,5	1500	-	2,33
Module 2.0	241 996 03	20	20	18,0	500	-	1,38
	241 996 05	20	20	18,0	1000	1005,0 - 1	2,77
	241 996 07	20	20	18,0	1500	1501,0 - 1	4,12
	241 996 09	20	20	18,0	2000	2004,0 - 1,5	5,50
Module 2.5	242 996 03	25	25	22,5	500	-	2,17
	242 996 05	25	25	22,5	1000	1005,1 - 1	4,31
	242 996 07	25	25	22,5	1500	1507,5 - 1	6,46
	242 996 09	25	25	22,5	2000	2002,5 - 1,5	8,61
Module 3.0	243 996 03	30	30	27,0	500	-	3,17
	243 996 05	30	30	27,0	1000	1008,0 - 1,5	6,27
	243 996 07	30	30	27,0	1500	1507,5 - 1,5	9,33
	243 996 09	30	30	27,0	2000	2007,0 - 1,5	12,43
Module 4.0	244 996 03	40	40	36,0	500	-	5,55
	244 996 05	40	40	36,0	1000	1005,0 - 1,5	11,14
	244 996 07	40	40	36,0	1500	1507,5 - 1	16,50
	244 996 09	40	40	36,0	2000	2010,0 - 1,5	22,50

Total pitch error for steel racks in tooth quality 8

Total Pitch Error F_p along the lines of DIN 3962 quality 8 tolerance for teeth on spur gears, analogously applied on gear racks.

Value in $\mu = 1/1000$ mm

Module	Permissible Pitch Error for Length in mm				
	250	500	1000	1500	2000
1.00 - 2.00	50	56	63	63	71
over 2.00 up to 3.55	50	63	71	71	80
over 3.55 up to 6.00	56	71	80	80	90
over 6.00 up to 10.00	63	71	80	80	90



Reworking within
24h-service possible.
Custom made parts
on request.

Gear racks with metric pitch, straight teeth, square

Material: Steel C45KG.
Stainless steel 1.4305.

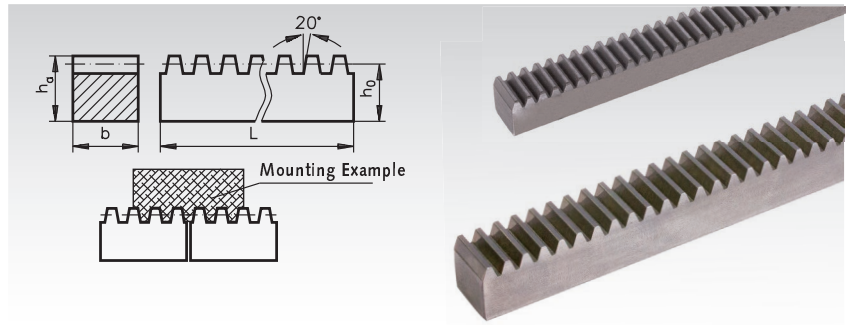


Tooth quality 8d25 modelled on DIN 3967.
Pressure angle 20°.

Pitch 10 mm, can be assembled together except for 500 mm nominal length.

The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances.

Dim. h_a and h_0 : Pitch 5 mm: -0.2 mm
Pitch 10 mm: -0.3 mm



Ordering Details: e.g.: Product No. 205 601 00, gear rack pitch 5mm, 250 mm long

	Product No. Steel	Product No. Stainless Steel	Tooth Width	Overall Height		Nominal Length		Weight kg
			b mm	h_a mm	h_0 mm	L mm		
Pitch 5mm (Module 1.59)	205 601 00	205 996 01	15	15	13,4	250	0,39	
	205 603 00	205 996 03	15	15	13,4	500	0,78	
	205 605 00	205 996 05	15	15	13,4	1000	1,55	
Pitch 10mm (Module 3.18)	205 609 00	205 996 09	15	15	13,4	2000	3,10	
	210 601 00	210 996 01	30	30	26,8	250	1,59	
	210 603 00	210 996 03	30	30	26,8	500	3,17	
	210 605 00	210 996 05	30	30	26,8	1000	6,27	
	210 609 00	210 996 09	30	30	26,8	2000	12,43	

Round Gear racks with metric pitch, straight teeth

Material: Steel St50K (length 2000mm:C45K), diameter tolerance **h6, ground**.

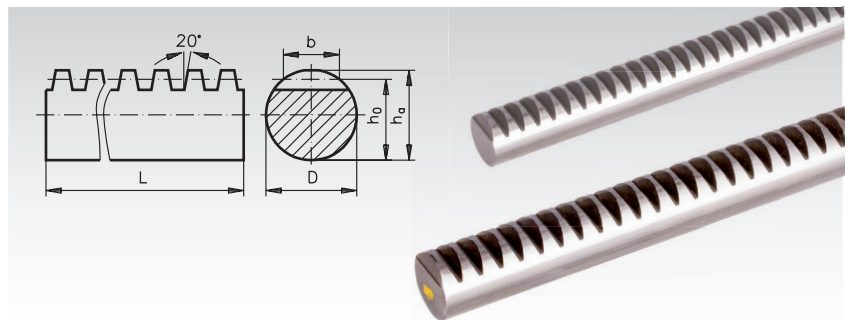
Stainless steel 1.4305.
Diameter tolerance **h9**.



Tooth quality 8d25 modelled on DIN 3967.
Pressure angle 20°.

The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances.

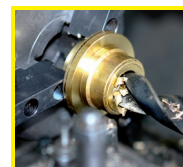
Dim. h_a and h_0 : Pitch 5 mm: -0.2 mm
Pitch 10 mm: -0.3 mm



Ordering Details: e.g.: Product No. 205 631 00, round gear rack, pitch 5mm, 500mm long

	Product No. Steel	Product No. Stainless Steel	Nom. length L	D mm	h_0 mm	h_a mm	b mm	Weight kg
			mm					
Pitch 5mm (Module 1.59)	205 631 00	205 996 31	500	15	13,4	15,0	9,4	0,64
	205 632 00	205 996 32	1000	15	13,4	15,0	9,4	1,28
	205 634 00	205 996 34	2000	15	13,4	15,0	9,4	2,56
Pitch 10mm (Module 3.18)	210 631 00	210 996 31	500	30	26,8	30,0	18,8	2,59
	210 632 00	210 996 32	1000	30	26,8	30,0	18,8	5,14
	210 634 00	210 996 34	2000	30	26,8	30,0	8,8	10,28

Matching
Spur Gears
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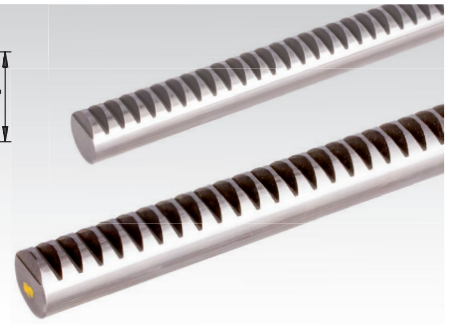
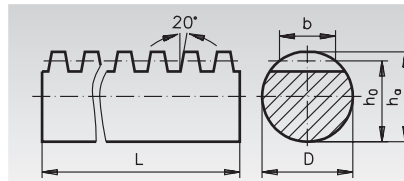


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Custom made parts
on request.

Round Gear Racks Made From Steel

Tooth quality 8d25 modelled on DIN 3967.
Pressure angle 20°.
The teeth on the gear racks are manufactured using an overhead milling cutter. This leads to negative tolerances.

Dim. h_a and h_0 : to module 2 -0.2 mm
module 2.5 - 4 -0.3 mm
module 5 - 6 -0.4 mm



Ordering Details: e.g.: Product No. 224 631 00,
Round gear rack St., module 1, D 10 x 500 mm

Round Gear Racks Made From Steel, Milled Teeth, Straight Tooth System, Precisely Straightened

On choice: High Strength Steel!

		Product No. Standard	Product No. High Strength	Nom. length L mm	h_0 mm	h_a mm	b mm	Weight kg
Material standard: St50K	Module 1.0 D = 10 mm	224 631 00	224 666 31	500	9,0	10,0	6,0	0,28
		224 632 00	224 666 32	1000	9,0	10,0	6,0	0,56
Material High Strength:	Module 1.0 D = 15 mm	225 631 00	-	500	14,0	15,0	7,5	0,66
		225 632 00	-	1000	14,0	15,0	7,5	1,35
Special steel with strength 1,000N/mm ²	Module 1.5 D = 17 mm	228 631 00	228 666 31	500	13,5	15,0	9,0	0,64
		228 632 00	228 666 32	1000	13,5	15,0	9,0	1,28
Diameter tolerance h_6 ground. (Tooth flanks not ground). Other dimensions, also from drawing, can be supplied at short notice.	Module 1.5 D = 15 mm	229 631 00	-	500	15,5	17,0	9,6	0,84
		229 632 00	-	1000	15,5	17,0	9,6	1,70
Module 2.0 D = 20 mm		241 631 00	241 666 31	500	18,0	20,0	12,0	1,14
		241 632 00	241 666 32	1000	18,0	20,0	12,0	2,28
		241 634 00*	241 666 34	2000	18,0	20,0	12,0	4,52
Module 2.5 D = 25 mm		242 631 00	242 666 31	500	22,5	25,0	15,0	1,78
		242 632 00	242 666 32	1000	22,5	25,0	15,0	3,56
		242 634 00*	242 666 34	2000	22,5	25,0	15,0	7,20
Module 3.0 D = 30 mm		243 631 00	243 666 31	500	27,0	30,0	18,0	2,59
		243 632 00	243 666 32	1000	27,0	30,0	18,0	5,14
		243 634 00*	243 666 34	2000	27,0	30,0	18,0	10,28
Module 4.0 D = 40 mm		244 631 00	244 666 31	500	36,0	40,0	24,0	4,56
		244 632 00	244 666 32	1000	36,0	40,0	24,0	9,12
		244 634 00*	244 666 34	2000	36,0	40,0	24,0	18,24
Module 5.0 D = 50 mm		245 631 00	245 666 31	500	45,0	50,0	30,0	7,10
		245 632 00	245 666 32	1000	45,0	50,0	30,0	14,20
		245 634 00*	245 666 34	2000	45,0	50,0	30,0	28,40
Module 6.0 D = 60 mm		246 631 00	246 666 31	500	54,0	60,0	36,0	10,28
		246 632 00	246 666 32	1000	54,0	60,0	36,0	20,56
		246 634 00*	246 666 34	2000	54,0	60,0	36,0	41,12

* Material: C45K.

Racks length 250 mm from C45 (up to module 5) at www.maedler.de

Round Gear Racks Made From Stainless Steel, Milled Teeth, Straight Tooth System, Precisely Straightened

Material:
Stainless steel
1.4305.
Diameter tolerance
 h_9 drawn.



		Product No.	Nom. length L mm	h_0 mm	h_a mm	b mm	Weight kg
Module 1.0 D = 10 mm		224 996 31	500	9,0	10,0	6,0	0,28
		224 996 32	1000	9,0	10,0	6,0	0,56
Module 1.5 D = 15 mm		228 996 31	500	13,5	15,0	9,0	0,64
		228 996 32	1000	13,5	15,0	9,0	1,28
Module 2.0 D = 20 mm		241 996 31	500	18,0	20,0	12,0	1,14
		241 996 32	1000	18,0	20,0	12,0	2,28
		241 996 34	2000	18,0	20,0	12,0	4,56
Module 2.5 D = 25 mm		242 996 31	500	22,5	25,0	15,0	1,78
		242 996 32	1000	22,5	25,0	15,0	3,56
		242 996 34	2000	22,5	25,0	15,0	7,12
Module 3.0 D = 30 mm		243 996 31	500	27,0	30,0	18,0	2,59
		243 996 32	1000	27,0	30,0	18,0	5,14
		243 996 34	2000	27,5	30,0	18,0	10,28
Module 4.0 D = 40 mm		244 996 31	500	36,0	40,0	24,0	4,56
		244 996 32	1000	36,0	40,0	24,0	9,12
		244 996 34	2000	36,0	40,0	24,0	18,24

Gear Racks Made from Steel, Helical Toothed, Tempered, Teeth Milled

Material: high-quality, specially treated bright steel with approx. 900 N/mm² tensile strength.

Tooth quality 8e27.

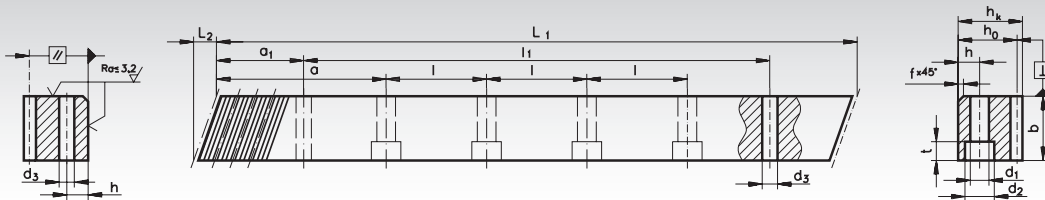
Helical tooth system, right hand 19° 31' 42".

For continuous linking.

Matching left hand-toothed counterparts, to simplify the mounting, are available at cost.

Matching helical-toothed spur gears page 252.

Ordering Details: e.g.: Product No. 251 603 11, Gear Rack, Helical Toothed, Tempered, Module 2.0, 500 mm



Module 2.0

Product No. with Bores	L ₁ mm	L ₂ mm	Number of teeth	b mm	h _k mm	h ₀ mm	f mm	a mm	l mm	No. of bores	h mm	d ₁ mm	d ₂ mm	t mm	a ₁ mm	l ₁ mm	d ₃ mm	GT _f /300 ¹⁾ mm	Fu* N	Weight kg
251 603 11	500,00	8,9	75	25	24	22	2	62,50	125	4	8	7	11	7	31,7	436,6	5,7	0,044	2100	2,10
251 605 11	1000,00	8,9	150	25	24	22	2	62,50	125	8	8	7	11	7	31,7	936,6	5,7	0,044	2100	4,30
without Bores																				
251 603 10	500,00	8,9	75	25	24	22	2											0,044	2100	2,10
251 605 10	1000,00	8,9	150	25	24	22	2											0,044	2100	4,30
Counterpart for mounting																				
251 600 00	200,00	8,8	30	25	24	22														0,85

Module 3.0

Product No. with Bores	L ₁ mm	L ₂ mm	Number of teeth	b mm	h _k mm	h ₀ mm	f mm	a mm	l mm	No. of bores	h mm	d ₁ mm	d ₂ mm	t mm	a ₁ mm	l ₁ mm	d ₃ mm	GT _f /300 ¹⁾ mm	Fu* N	Weight kg
253 603 11	500,00	10,6	50	30	29	26	2	62,50	125	4	9	10	15	9	35,0	430,0	7,7	0,046	4500	3,00
253 605 11	1000,00	10,6	100	30	29	26	2	62,50	125	8	9	10	15	9	35,0	930,0	7,7	0,046	4500	6,10
without Bores																				
253 603 10	500,00	10,6	50	30	29	26	2											0,046	4500	3,00
253 605 10	1000,00	10,6	100	30	29	26	2											0,046	4500	6,10
Counterpart for mounting																				
253 600 00	200,00	10,6	20	30	29	26														2,70

Module 4.0

Product No. with Bores	L ₁ mm	L ₂ mm	Number of teeth	b mm	h _k mm	h ₀ mm	f mm	a mm	l mm	No. of bores	h mm	d ₁ mm	d ₂ mm	t mm	a ₁ mm	l ₁ mm	d ₃ mm	GT _f /300 ¹⁾ mm	Fu* N	Weight kg
254 603 11	506,67	14,2	38	40	39	35	2	62,50	125	4	12	10	15	9	33,3	433,0	7,7	0,048	8700	5,50
254 605 11	1000,00	14,2	75	40	39	35	2	62,50	125	8	12	10	15	9	33,3	933,4	7,7	0,048	8700	10,90
without Bores																				
254 603 10	506,67	14,2	38	40	39	35	2											0,048	8700	5,50
254 605 10	1000,00	14,2	75	40	39	35	2											0,048	8700	10,90
Counterpart for mounting																				
254 600 00	200,00	14,2	15	40	39	35														2,70

Module 5.0

Product No. with Bores	L ₁ mm	L ₂ mm	Number of teeth	b mm	h _k mm	h ₀ mm	f mm	a mm	l mm	No. of bores	h mm	d ₁ mm	d ₂ mm	t mm	a ₁ mm	l ₁ mm	d ₃ mm	GT _f /300 ¹⁾ mm	Fu* N	Weight kg
255 603 11	500,00	17,4	30	50	39	34	3	62,50	125	4	12	14	20	13	37,5	425,0	11,7	0,050	15000	6,50
255 605 11	1000,00	17,4	60	50	39	34	3	62,50	125	8	12	14	20	13	37,5	925,0	11,7	0,050	15000	13,00
without Bores																				
255 603 10	500,00	17,4	30	50	39	34	3											0,050	15000	6,50
255 605 10	1000,00	17,4	60	50	39	34	3											0,050	15000	13,00
Counterpart for mounting																				
255 600 00	200,00	17,4	12	49	39	34														3,00

¹⁾ GT_f /300 = total pitch error, i.e. the max. permissible deviation (per 300 mm) of the measured length of the rack compared to the theoretical length L₃₀₀, with L₃₀₀ = (m / cos β) • π • z₃₀₀.

* Tangential force at tooth, calculated for z \geq 20. With a smaller number of teeth, the tangential force has to be reduced by 10%.

Precision Gear Racks Made from Steel, Helical Tooth System, Teeth Hardened and Ground

Material: 16MnCr5, Material-No. 1.7131, teeth induction hardened to about 60 HRC after hardening ground all around. As only the teeth are hardened subsequent drilling and pinning is easily possible.

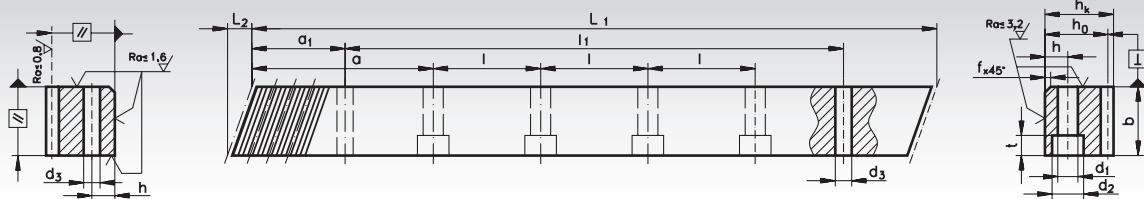
As only the teeth are hardened subsequent drilling and pinning is easily possible. Tooth quality 8e27.

Helical tooth system, right hand 19° 31' 42".

For continuous linking.

Matching helical-toothed spur gears page 252.

Ordering Details: e.g.: Product No. 251 603 01, Gear Rack, Helical Tooth System, hardened, Teeth Ground, Module 2.0, 500 mm



Module 2.0

Product No. with Bores	L ₁ mm	L ₂ mm	Number of teeth	b mm	h _k mm	h ₀ mm	f mm	a mm	l mm	No. of h bores	d ₁ mm	d ₂ mm	t mm	a ₁ mm	l ₁ mm	d ₃ mm	GT _f /300 ¹⁾ mm	Fu* N	Weight kg	
251 603 01	500,00	8,5	75	24	24	22	2	62,50	125	4	8	7	11	7	31,7	436,6	5,7	0,022	8500	2,10
251 605 01	1000,00	8,5	150	24	24	22	2	62,50	125	8	8	7	11	7	31,7	936,6	5,7	0,022	8500	4,10
without Bores																				
251 603 00	500,00	8,5	75	24	24	22	2										0,022	8500	2,10	
251 605 00	1000,00	8,5	150	24	24	22	2										0,022	8500	4,10	
Counterpart for mounting																				
251 600 00	200,00	8,5	30	24	24	22														0,85

Module 3.0

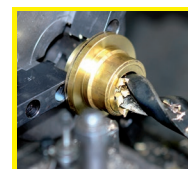
Product No. with Bores	L ₁ mm	L ₂ mm	Number of teeth	b mm	h _k mm	h ₀ mm	f mm	a mm	l mm	No. of h bores	d ₁ mm	d ₂ mm	t mm	a ₁ mm	l ₁ mm	d ₃ mm	GT _f /300 ¹⁾ mm	Fu* N	Weight kg	
253 603 01	500,00	10,3	50	29	29	26	2	62,50	125	4	9	10	15	9	35	430,0	7,7	0,024	15000	2,90
253 605 01	1000,00	10,3	100	29	29	26	2	62,50	125	8	9	10	15	9	35	930,0	7,7	0,024	15000	5,90
without Bores																				
253 603 00	500,00	10,3	50	29	29	26	2										0,024	15000	2,90	
253 605 00	1000,00	10,3	100	29	29	26	2										0,024	15000	5,90	
Counterpart for mounting																				
253 600 00	200,00	10,3	20	29	29	26														1,20

Module 4.0

Product No. with Bores	L ₁ mm	L ₂ mm	Number of teeth	b mm	h _k mm	h ₀ mm	f mm	a mm	l mm	No. of h bores	d ₁ mm	d ₂ mm	t mm	a ₁ mm	l ₁ mm	d ₃ mm	GT _f /300 ¹⁾ mm	Fu* N	Weight kg	
254 603 01	506,67	13,8	38	39	39	35	3	62,50	125	4	12	10	15	9	33,3	433,0	7,7	0,024	25000	5,40
254 605 01	1000,00	13,8	75	39	39	35	3	62,50	125	8	12	10	15	9	33,3	933,4	7,7	0,024	25000	10,70
without Bores																				
254 603 00	506,67	13,8	38	39	39	35	3										0,024	25000	5,40	
254 605 00	1000,00	13,8	75	39	39	35	3										0,024	25000	10,70	
Counterpart for mounting																				
254 600 00	200,00	13,8	15	39	39	35														2,70

¹⁾ GT_f /300 = total pitch error, i.e. the max. permissible deviation (per 300 mm) of the measured length of the rack compared to the theoretical length L₃₀₀, with L₃₀₀ = (m / cos β) • π • z₃₀₀.

* Tangential force at tooth, calculated for z ≥ 20. With a smaller number of teeth, the tangential force has to be reduced by 10%.



**Reworking within
24h-service possible.
Custom made parts
on request.**

Precision Gear Racks Made from Steel, Helical Toothed, Teeth Hardened and Ground

Material: C45K, Material-No. 1.0503, made from specially treated bright steel with approx. 650 N/mm² tensile strength. Teeth induction hardened to 50 to 55 HRC, after hardening ground all around. As only the teeth are hardened subsequent drilling and pinning is easily possible. Tooth quality 6h25.

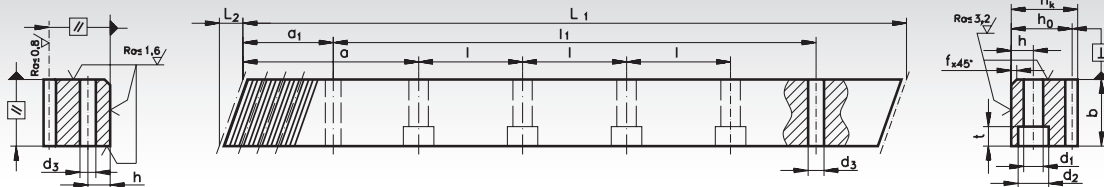
Helical tooth system, right hand 19° 31' 42".

For continuous linking.

Matching helical-toothed spur gears page 252.



Ordering Details: e.g.: Product No. 255 603 01, Gear Rack, Helical Toothed, Hardened, Teeth Ground, Module 5.0, 500 mm



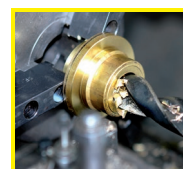
Module 5.0

Product No. with Bores	L ₁ mm	L ₂ mm	Number of teeth	b mm	h _k mm	h ₀ mm	f mm	a mm	l mm	No. of h bores	d ₁ mm	d ₂ mm	t mm	a ₁ mm	l ₁ mm	d ₃ mm	GT _f /300 ¹⁾ mm	Fu* N	Weight kg	
																				mm
255 603 01	500,00	17,4	30	49	39	34	3	62,50	125	4	12	14	20	13	37,5	425,0	11,7	0,025	32000	6,50
255 605 01	1000,00	17,4	60	49	39	34	3	62,50	125	8	12	14	20	13	37,5	925,0	11,7	0,025	32000	13,00
without Bores																				
255 603 00	500,00	17,4	30	49	39	34	3										0,025	32000	6,50	
255 605 00	1000,00	17,4	60	49	39	34	3										0,025	32000	13,00	
Counterpart for mounting																				
255 600 00	200,00	17,4	12	49	39	34											0,025	32000	3,00	

¹⁾ GT_f / 300 = total pitch error, i.e. the max. permissible deviation (per 300 mm) of the measured length of the rack compared to the theoretical length L₃₀₀, with L₃₀₀ = (m / cos β) • π • z₃₀₀.

* Tangential force at tooth, calculated for z ≥ 20. With a smaller number of teeth, the tangential force has to be reduced by 10%.

**Helical Tooth
Spur Gears
Page 252**



**Reworking within
24h-service possible.
Custom made parts
on request.**