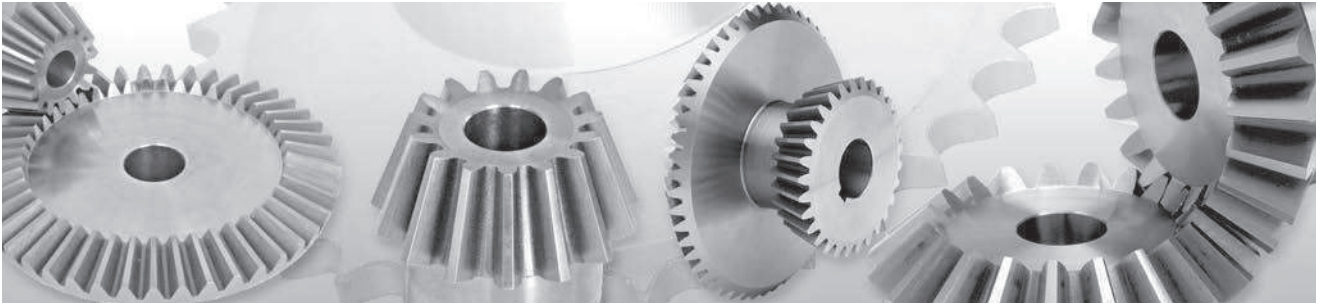


## Kegelräder

## Bevel Gears



### Lagerprogramm

Kegelräder - Verzahnungsgeometrie  
Kegelräder  
Kegelräder Acetalharz gespritzt

G 1  
G 2 - G 8  
G 9 - G 10

### stock programme

Bevel Gears - Toothing Geometry  
Bevel Gears  
Moulded Bevel Gears

### Sonderanfertigungen

Auf Anfrage

made to order

on request

### Bogenverzahnte Kegelräder

Klingenberg-Zyclo-Palloid-Verzahnung  
auch HPG, max. Werkstück-Ø 500 mm  
Modul 2-8

spiral bevel gears

Klingenberg-Zyclo-Palloid-toothing also  
HPG, max. diameter 500 mm  
modules 2-8

### Kegelräder

geradverzahnt ballige Zahnflanken, wälz-  
gefräst Rad-Ø bis 300 mm  $i = 1:1$   
Rad-Ø bis 400 mm  $i = 1:10$   
Zahnbreite bis 63 mm  
Modul 0,5-8



bevel gears

straight teeth, localized tooth bearing,  
hobbed gear-Ø up to 300 mm  $i = 1:1$   
gear-Ø up to 400 mm  $i = 1:10$   
width of teeth up to 63 mm  
modules 0,5-8

### Kegelräder

gerad- oder schrägverzahnt  
ballige Zahnflanken, wälzgestoßen  
Rad-Ø bis 425 mm  $i = 1:1$   
Rad-Ø bis 600 mm  $i = 1:10$   
Zahnbreite bis 90 mm  
Modul 1-8



bevel gears

straight or helical teeth  
localized tooth bearing,  
hobbed gear-Ø up to 425 mm  $i = 1:1$   
gear-Ø up to 600 mm  $i = 1:10$   
width of teeth up to 90 mm  
modules 1-8

### Kegelräder

einbaufertig bearbeitet, Einbaumaße,  
Übersetzungsverh. entsprechend Ihren  
Wünschen, Warmbehandlung u. Lappen  
laut Zeichnung

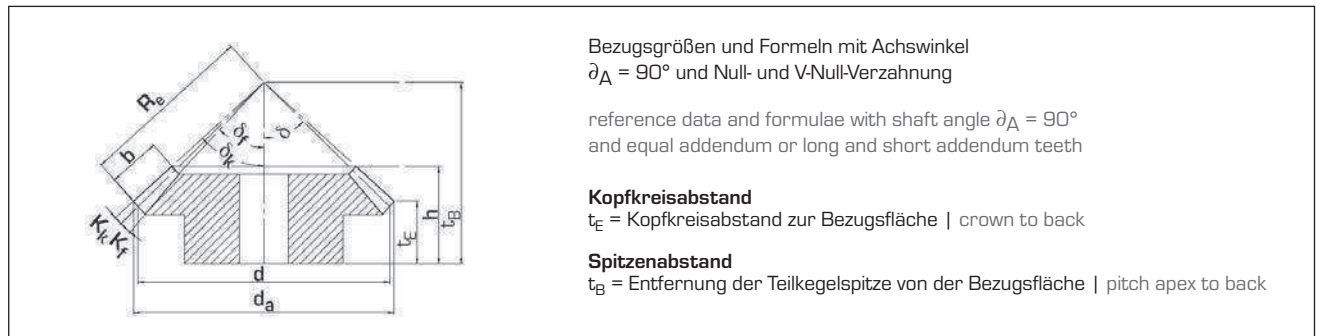
bevel gears

finished, dimensions, ratios to your  
order, heat treated and lapped  
to your drawing



## Kegelräder - Information

### Bevel Gears - Information



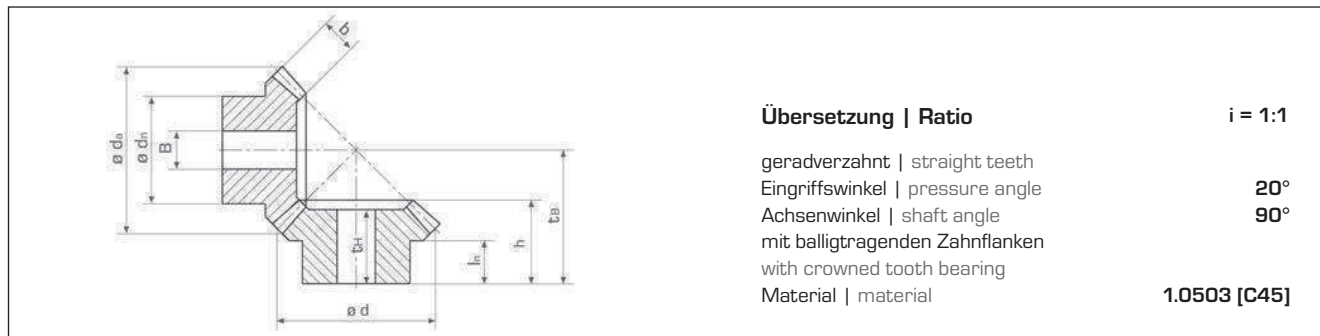
| Benennung              | description            | Zeichen / Formel<br>symbol / formula                                     | Einheit<br>dimension |
|------------------------|------------------------|--|----------------------|
| Modul                  | module                 | $m = \frac{d}{z}$  | mm                   |
| Zähnezahl              | number of teeth        | $z = \frac{d}{m}$  |                      |
| Teilkreisdurchmesser   | pitch diameter         | $d = z \cdot m$  | mm                   |
| Eingriffswinkel        | pressure angle         | $\alpha = 20^\circ$ (DIN 687)  |                      |
| Übersetzungsverhältnis | ratio                  | $i = \frac{z_2}{z_1} = \frac{d_2}{d_1} = \frac{n_1}{n_2}$                |                      |
| Achsenwinkel           | shaft angle            | $\delta_A = \delta_1 + \delta_2$   |                      |
| Zahnbreite             | width of tooth         | $b \approx \frac{m \cdot z}{6 \sin \delta}$                              | mm                   |
| Äußere Teilkegellänge  | external cone distance | $R_e \approx \frac{d}{2 \sin \delta}$                                    | mm                   |
| Teilkegelwinkel        | dedendum angle         | $\tan \delta = \frac{z_1}{z_2}$  |                      |
| Kopfkegelwinkel        | face angle             | $\delta_k = \delta + K_k$  |                      |
| Kopfkreisdurchmesser   | outside diameter       | $d_a = d + 2h_a \cdot \cos \delta$                                       | mm                   |
| Fußkegelwinkel         | root (cone) angle      | $\delta_f = \delta - K_f$  |                      |
| Zahnkopfwinkel         | addendum angle         | $\tan K_k = \frac{2}{\sqrt{z_1^2 + z_2^2}}$ (für $\delta_a = 90^\circ$ ) |                      |
| Zahnfußwinkel          | dedendum angle         | $\tan K_f = \frac{h_f}{R_e}$   |                      |
| Zahnkopfhöhe           | addendum height        | $h_a$  | mm                   |
| Zahnfußhöhe            | dedendum height        | $h_f$  | mm                   |

WMH-Standard Kegelräder aus Werkstoff 1.0503 (C45) werden mit längsballigen Zahnflanken in Qualität 9 nach DIN 3962, 3963 und 3967 hergestellt. Die Kegelräder sind austauschbar. Für höhere Beanspruchungen können diese Kegelräder nachträglich auf  $52 \pm 2$  HRC induktiv gehärtet oder auf  $850 - 900$  [N/mm<sup>2</sup>] vergütet werden. Beim Einbau ist darauf zu achten, dass die Axialdrücke mit entsprechend tragfähigen Lagern aufgefangen werden.

WMH-Standard Bevel gears made out of material steel 1.0503 (C45) are manufactured with crowned flanks in quality classified as no 9 acc. to DIN 3962, 3963 and 3967. The bevel gears are interchangeable. For higher loads, the bevel gears can be heat treated to  $850 - 900$  [N/mm<sup>2</sup>] or induction-hardened to  $52 \pm 2$  HRC. When installing take care, that the axial pressures will be absorbed with appropriate carrying bearings.

# Kegelräder

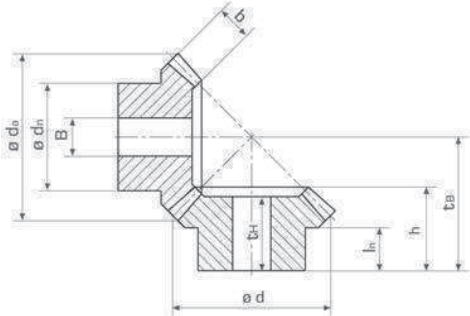
## Bevel Gears



| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$  | $d$   | $b$  | $l_H$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | $t_E$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|--------|-------|------|-------|-------|------|-------|------|-------|-------|-------|-------------------------|
| 1,0             | 16                     | 17,41  | 16,0  | 4,0  | 8,0   | 14,0  | 5,0  | 17,0  | 12,3 | 11,0  | 9,71  | 0,012 | 151-110-016             |
|                 | 19                     | 20,41  | 19,0  | 4,5  | 8,0   | 16,0  | 6,0  | 19,0  | 13,2 | 12,0  | 10,21 | 0,018 | 151-110-019             |
|                 | 22                     | 23,41  | 22,0  | 5,0  | 9,5   | 19,0  | 6,0  | 22,0  | 15,0 | 13,5  | 11,71 | 0,027 | 151-110-022             |
|                 | 26                     | 27,41  | 26,0  | 6,0  | 10,0  | 22,0  | 8,0  | 25,0  | 16,7 | 15,5  | 12,71 | 0,042 | 151-110-026             |
|                 | 30                     | 31,41  | 30,0  | 7,0  | 10,5  | 25,0  | 8,0  | 28,0  | 18,4 | 17,0  | 13,71 | 0,061 | 151-110-030             |
| 1,5             | 16                     | 26,11  | 24,0  | 6,0  | 10,0  | 20,0  | 8,0  | 24,0  | 16,9 | 15,0  | 13,06 | 0,032 | 151-115-016             |
|                 | 19                     | 30,62  | 28,5  | 6,5  | 10,5  | 24,0  | 8,0  | 27,0  | 18,0 | 16,0  | 13,81 | 0,053 | 151-115-019             |
|                 | 22                     | 35,12  | 33,0  | 7,5  | 11,0  | 26,0  | 8,0  | 31,0  | 20,5 | 18,5  | 15,56 | 0,077 | 151-115-022             |
|                 | 26                     | 41,12  | 39,0  | 8,5  | 13,0  | 28,0  | 10,0 | 35,0  | 22,2 | 20,5  | 16,56 | 0,105 | 151-115-026             |
|                 | 30                     | 47,12  | 45,0  | 10,0 | 13,5  | 30,0  | 10,0 | 39,0  | 24,3 | 22,5  | 17,56 | 0,150 | 151-115-030             |
| 2,0             | 16                     | 34,83  | 32,0  | 8,0  | 12,0  | 26,0  | 10,0 | 31,0  | 21,5 | 19,0  | 16,41 | 0,072 | 151-120-016             |
|                 | 19                     | 40,83  | 38,0  | 9,0  | 12,0  | 30,0  | 10,0 | 35,0  | 23,3 | 21,0  | 17,41 | 0,115 | 151-120-019             |
|                 | 22                     | 46,83  | 44,0  | 10,0 | 13,0  | 32,0  | 12,0 | 39,0  | 25,0 | 23,0  | 18,41 | 0,155 | 151-120-022             |
|                 | 26                     | 54,83  | 52,0  | 11,5 | 14,0  | 36,0  | 12,0 | 45,0  | 28,1 | 26,0  | 20,41 | 0,242 | 151-120-026             |
|                 | 30                     | 62,83  | 60,0  | 13,5 | 15,0  | 40,0  | 14,0 | 50,0  | 30,5 | 28,0  | 21,41 | 0,340 | 151-120-030             |
| 2,5             | 16                     | 43,54  | 40,0  | 10,0 | 13,0  | 32,0  | 12,0 | 37,0  | 25,2 | 22,0  | 18,77 | 0,132 | 151-125-016             |
|                 | 19                     | 51,04  | 47,5  | 11,0 | 14,5  | 38,0  | 12,0 | 43,0  | 28,2 | 25,0  | 21,02 | 0,220 | 151-125-019             |
|                 | 22                     | 58,54  | 55,0  | 12,5 | 16,0  | 40,0  | 14,0 | 48,0  | 30,5 | 28,0  | 22,27 | 0,298 | 151-125-022             |
|                 | 26                     | 68,54  | 65,0  | 14,5 | 17,0  | 45,0  | 16,0 | 54,0  | 33,0 | 30,0  | 23,27 | 0,433 | 151-125-026             |
|                 | 30                     | 78,54  | 75,0  | 16,5 | 18,0  | 50,0  | 18,0 | 60,0  | 35,4 | 32,0  | 24,27 | 0,602 | 151-125-030             |
| 3,0             | 16                     | 52,24  | 48,0  | 12,0 | 14,0  | 38,0  | 14,0 | 43,0  | 28,9 | 25,0  | 21,12 | 0,218 | 151-130-016             |
|                 | 19                     | 61,24  | 57,0  | 13,5 | 16,0  | 40,0  | 14,0 | 49,0  | 31,4 | 28,0  | 22,62 | 0,315 | 151-130-019             |
|                 | 22                     | 70,24  | 66,0  | 15,0 | 18,0  | 45,0  | 16,0 | 56,0  | 35,0 | 31,0  | 25,12 | 0,457 | 151-130-022             |
|                 | 26                     | 82,24  | 78,0  | 17,0 | 20,0  | 52,0  | 18,0 | 65,0  | 39,5 | 36,0  | 28,12 | 0,737 | 151-130-026             |
|                 | 30                     | 94,24  | 90,0  | 19,5 | 22,0  | 60,0  | 20,0 | 73,0  | 43,3 | 39,0  | 30,12 | 1,08  | 151-130-030             |
| 3,5             | 16                     | 60,95  | 56,0  | 14,0 | 16,5  | 45,0  | 16,0 | 50,0  | 33,5 | 29,0  | 24,48 | 0,353 | 151-135-016             |
|                 | 19                     | 71,45  | 66,5  | 16,0 | 18,0  | 50,0  | 16,0 | 57,0  | 36,7 | 32,0  | 26,22 | 0,540 | 151-135-019             |
|                 | 22                     | 81,95  | 77,0  | 17,5 | 20,0  | 55,0  | 18,0 | 64,0  | 39,6 | 35,0  | 27,98 | 0,745 | 151-135-022             |
|                 | 26                     | 95,95  | 91,0  | 20,0 | 21,0  | 60,0  | 20,0 | 73,0  | 43,4 | 39,0  | 29,98 | 1,11  | 151-135-026             |
|                 | 30                     | 109,95 | 105,0 | 23,0 | 23,0  | 70,0  | 22,0 | 83,0  | 48,5 | 44,0  | 32,98 | 1,70  | 151-135-030             |

# Kegelräder

## Bevel Gears



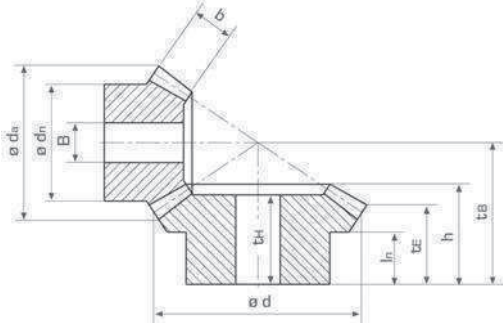
**Übersetzung | Ratio** **i = 1:1**

geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Material | material **1.0503 [C45]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$  | $d$   | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | $t_E$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|--------|-------|------|-------|-------|------|-------|------|-------|-------|-------|-------------------------|
| 4,0             | 16                     | 69,66  | 64,0  | 16,0 | 18,0  | 50,0  | 18,0 | 57,0  | 38,1 | 33,0  | 27,83 | 0,512 | 151-140-016             |
|                 | 19                     | 81,66  | 76,0  | 18,0 | 20,0  | 55,0  | 18,0 | 65,0  | 41,6 | 37,0  | 29,83 | 0,775 | 151-140-019             |
|                 | 22                     | 93,66  | 88,0  | 20,0 | 22,0  | 60,0  | 20,0 | 73,0  | 45,0 | 40,0  | 31,83 | 1,08  | 151-140-022             |
|                 | 26                     | 109,66 | 104,0 | 23,0 | 23,0  | 70,0  | 22,0 | 82,0  | 48,2 | 44,0  | 32,83 | 1,65  | 151-140-026             |
|                 | 30                     | 125,66 | 120,0 | 26,0 | 25,0  | 80,0  | 25,0 | 92,0  | 52,4 | 48,0  | 34,83 | 2,41  | 151-140-030             |
| 4,5             | 16                     | 78,36  | 72,0  | 18,0 | 21,0  | 58,0  | 20,0 | 64,0  | 42,8 | 38,0  | 31,18 | 0,755 | 151-145-016             |
|                 | 19                     | 91,86  | 85,5  | 20,0 | 21,0  | 60,0  | 22,0 | 72,0  | 45,5 | 40,0  | 32,43 | 1,02  | 151-145-019             |
|                 | 22                     | 105,36 | 99,0  | 22,5 | 23,0  | 70,0  | 25,0 | 81,0  | 49,6 | 44,0  | 34,68 | 1,54  | 151-145-022             |
|                 | 26                     | 123,36 | 117,0 | 25,5 | 25,0  | 80,0  | 28,0 | 92,0  | 53,7 | 48,0  | 36,68 | 2,32  | 151-145-026             |
|                 | 30                     | 141,36 | 135,0 | 29,0 | 28,0  | 85,0  | 30,0 | 104,0 | 59,2 | 54,0  | 39,68 | 3,26  | 151-145-030             |
| 5,0             | 16                     | 87,07  | 80,0  | 20,0 | 22,5  | 65,0  | 22,0 | 70,0  | 46,4 | 41,0  | 33,54 | 1,03  | 151-150-016             |
|                 | 19                     | 102,07 | 95,0  | 22,0 | 23,0  | 70,0  | 25,0 | 79,0  | 49,4 | 44,0  | 35,04 | 1,44  | 151-150-019             |
|                 | 22                     | 117,07 | 110,0 | 25,0 | 25,0  | 80,0  | 28,0 | 89,0  | 54,1 | 48,0  | 37,54 | 2,12  | 151-150-022             |
|                 | 26                     | 137,07 | 130,0 | 29,0 | 29,0  | 85,0  | 30,0 | 103,0 | 60,9 | 55,0  | 41,54 | 3,14  | 151-150-026             |
|                 | 30                     | 157,07 | 150,0 | 32,0 | 32,0  | 90,0  | 35,0 | 116,0 | 66,1 | 60,0  | 44,54 | 4,25  | 151-150-030             |
| 6,0             | 16                     | 104,49 | 96,0  | 22,5 | 24,0  | 80,0  | 25,0 | 80,0  | 50,7 | 44,0  | 36,24 | 1,69  | 151-160-016             |
|                 | 19                     | 122,49 | 114,0 | 26,0 | 25,0  | 85,0  | 28,0 | 90,0  | 54,2 | 48,0  | 37,24 | 2,77  | 151-160-019             |
|                 | 22                     | 140,49 | 132,0 | 30,0 | 26,0  | 95,0  | 30,0 | 100,0 | 58,1 | 51,0  | 38,24 | 4,10  | 151-160-022             |
|                 | 26                     | 164,49 | 156,0 | 35,0 | 30,0  | 105,0 | 35,0 | 116,0 | 65,6 | 58,0  | 42,24 | 6,08  | 151-160-026             |
|                 | 30                     | 188,49 | 180,0 | 40,0 | 33,0  | 120,0 | 40,0 | 132,0 | 73,2 | 66,0  | 46,24 | 9,16  | 151-160-030             |

# Kegelräder

## Bevel Gears



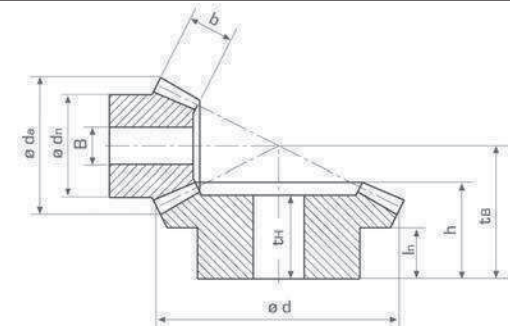
**Übersetzung | Ratio** **i = 1:1,5**

geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Material | material **1.0503 [C45]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$  | $d$   | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | $t_E$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|--------|-------|------|-------|-------|------|-------|------|-------|-------|-------|-------------------------|
| 1,0             | 16                     | 17,66  | 16,0  | 4,5  | 7,2   | 13,5  | 5,0  | 20,0  | 12,1 | 11,0  | 8,55  | 0,011 | 151-210-016             |
|                 | 24                     | 25,11  | 24,0  | 4,5  | 9,7   | 21,0  | 6,0  | 20,0  | 15,1 | 13,5  | 12,83 | 0,035 | 151-210-024             |
| 1,5             | 16                     | 26,50  | 24,0  | 7,0  | 10,6  | 20,0  | 8,0  | 30,0  | 18,4 | 17,0  | 12,83 | 0,036 | 151-215-016             |
|                 | 24                     | 37,66  | 36,0  | 7,0  | 12,0  | 26,0  | 8,0  | 27,0  | 19,7 | 17,5  | 16,25 | 0,080 | 151-215-024             |
| 2,0             | 16                     | 35,33  | 32,0  | 10,0 | 12,0  | 26,0  | 10,0 | 38,0  | 23,0 | 21,0  | 15,11 | 0,080 | 151-220-016             |
|                 | 24                     | 50,22  | 48,0  | 10,0 | 15,0  | 35,0  | 12,0 | 35,0  | 25,6 | 23,0  | 20,66 | 0,185 | 151-220-024             |
| 2,5             | 16                     | 44,16  | 40,0  | 12,5 | 13,3  | 32,0  | 12,0 | 46,0  | 27,3 | 25,0  | 17,39 | 0,146 | 151-225-016             |
|                 | 24                     | 62,77  | 60,0  | 12,5 | 16,0  | 42,0  | 14,0 | 42,0  | 30,2 | 27,0  | 24,08 | 0,340 | 151-225-024             |
| 3,0             | 16                     | 53,00  | 48,0  | 14,5 | 15,3  | 40,0  | 14,0 | 54,0  | 31,2 | 28,0  | 19,66 | 0,255 | 151-230-016             |
|                 | 24                     | 75,33  | 72,0  | 14,5 | 18,0  | 50,0  | 16,0 | 49,0  | 34,7 | 30,0  | 27,50 | 0,555 | 151-230-024             |
| 3,5             | 16                     | 61,82  | 56,0  | 17,0 | 17,0  | 47,0  | 16,0 | 62,0  | 35,4 | 32,0  | 21,94 | 0,400 | 151-235-016             |
|                 | 24                     | 87,88  | 84,0  | 17,0 | 21,0  | 58,0  | 18,0 | 57,0  | 40,3 | 36,0  | 31,91 | 0,905 | 151-235-024             |
| 4,0             | 16                     | 70,66  | 64,0  | 19,0 | 18,7  | 54,0  | 18,0 | 70,0  | 39,3 | 35,0  | 24,22 | 0,584 | 151-240-016             |
|                 | 24                     | 100,44 | 96,0  | 19,0 | 24,0  | 66,0  | 20,0 | 65,0  | 45,8 | 40,0  | 36,33 | 1,330 | 151-240-024             |
| 4,5             | 16                     | 79,49  | 72,0  | 21,5 | 21,0  | 60,0  | 20,0 | 79,0  | 44,5 | 40,0  | 27,50 | 0,833 | 151-245-016             |
|                 | 24                     | 113,00 | 108,0 | 21,5 | 26,0  | 75,0  | 25,0 | 73,0  | 51,4 | 45,0  | 40,74 | 1,88  | 151-245-024             |
| 5,0             | 16                     | 88,32  | 80,0  | 24,0 | 23,0  | 65,0  | 22,0 | 88,0  | 49,8 | 45,0  | 30,77 | 1,13  | 151-250-016             |
|                 | 24                     | 25,55  | 120,0 | 24,0 | 28,0  | 85,0  | 30,0 | 80,0  | 56,1 | 49,0  | 44,16 | 2,55  | 151-250-024             |
| 6,0             | 16                     | 105,98 | 96,0  | 28,5 | 24,7  | 80,0  | 25,0 | 102,0 | 55,9 | 50,0  | 33,33 | 2,05  | 151-260-016             |
|                 | 24                     | 150,66 | 144,0 | 28,5 | 32,0  | 105,0 | 35,0 | 90,0  | 61,1 | 52,5  | 46,99 | 4,18  | 151-260-024             |

# Kegelräder

## Bevel Gears



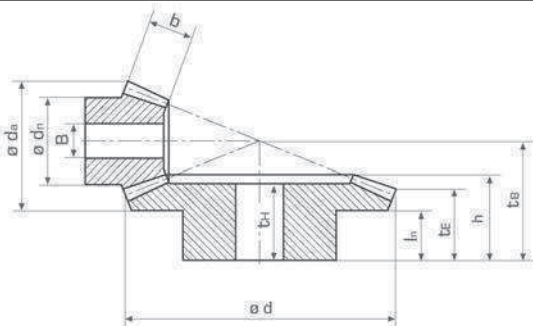
**Übersetzung | Ratio** **i = 1:2**

geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Material | material **1.0503 [C45]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$  | $d$   | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | $t_E$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|--------|-------|------|-------|-------|------|-------|------|-------|-------|-------|-------------------------|
| 1,0             | 15                     | 16,79  | 15,0  | 5,0  | 7,4   | 12,5  | 5,0  | 23,0  | 12,8 | 12,0  | 8,45  | 0,010 | 151-310-015             |
|                 | 30                     | 30,89  | 30,0  | 5,0  | 9,0   | 22,0  | 8,0  | 20,0  | 15,4 | 14,0  | 13,40 | 0,044 | 151-310-030             |
| 1,5             | 15                     | 25,18  | 22,5  | 8,0  | 10,6  | 19,0  | 8,0  | 34,0  | 19,1 | 18,0  | 12,17 | 0,032 | 151-315-015             |
|                 | 30                     | 46,34  | 45,0  | 8,0  | 13,0  | 32,0  | 10,0 | 28,0  | 21,2 | 19,0  | 18,09 | 0,133 | 151-315-030             |
| 2,0             | 15                     | 33,58  | 30,0  | 11,5 | 11,8  | 25,0  | 10,0 | 43,0  | 23,9 | 22,0  | 13,89 | 0,071 | 151-320-015             |
|                 | 30                     | 61,79  | 60,0  | 11,5 | 15,0  | 40,0  | 14,0 | 35,0  | 26,3 | 23,0  | 21,79 | 0,278 | 151-320-030             |
| 2,5             | 15                     | 41,97  | 37,5  | 14,5 | 13,9  | 31,0  | 12,0 | 53,0  | 29,2 | 27,0  | 16,62 | 0,140 | 151-325-015             |
|                 | 30                     | 77,24  | 75,0  | 14,5 | 17,0  | 50,0  | 18,0 | 42,0  | 31,2 | 27,0  | 25,49 | 0,510 | 151-325-030             |
| 3,0             | 15                     | 50,37  | 45,0  | 17,0 | 16,3  | 38,0  | 14,0 | 63,0  | 34,1 | 32,0  | 19,34 | 0,245 | 151-330-015             |
|                 | 30                     | 92,68  | 90,0  | 17,0 | 19,0  | 60,0  | 20,0 | 49,0  | 35,9 | 31,0  | 29,18 | 0,880 | 151-330-030             |
| 3,5             | 15                     | 58,76  | 52,5  | 19,5 | 18,4  | 44,0  | 16,0 | 73,0  | 39,0 | 36,0  | 22,06 | 0,38  | 151-335-015             |
|                 | 30                     | 108,13 | 105,0 | 19,5 | 22,0  | 70,0  | 22,0 | 57,0  | 41,6 | 36,0  | 33,88 | 1,41  | 151-335-030             |
| 4,0             | 15                     | 67,16  | 60,0  | 22,0 | 20,5  | 50,0  | 18,0 | 83,0  | 43,9 | 41,0  | 24,79 | 0,56  | 151-340-015             |
|                 | 30                     | 123,58 | 120,0 | 22,0 | 25,0  | 80,0  | 25,0 | 65,0  | 47,2 | 42,0  | 38,58 | 2,13  | 151-340-030             |
| 4,5             | 15                     | 75,55  | 67,5  | 25,0 | 22,4  | 55,0  | 20,0 | 93,0  | 49,2 | 46,0  | 27,51 | 0,78  | 151-345-015             |
|                 | 30                     | 139,02 | 135,0 | 25,0 | 28,0  | 90,0  | 30,0 | 73,0  | 53,1 | 47,0  | 43,27 | 2,99  | 151-345-030             |
| 5,0             | 15                     | 83,94  | 75,0  | 28,0 | 24,3  | 60,0  | 22,0 | 103,0 | 54,5 | 51,0  | 30,23 | 1,06  | 151-350-015             |
|                 | 30                     | 154,47 | 150,0 | 28,0 | 30,0  | 100,0 | 35,0 | 80,0  | 58,0 | 51,0  | 46,97 | 3,98  | 151-350-030             |
| 6,0             | 15                     | 100,73 | 90,0  | 32,5 | 26,3  | 75,0  | 25,0 | 120,0 | 60,9 | 56,0  | 32,68 | 1,82  | 151-360-015             |
|                 | 30                     | 185,37 | 180,0 | 32,5 | 33,0  | 120,0 | 40,0 | 90,0  | 63,2 | 54,0  | 50,37 | 5,84  | 151-360-030             |

# Kegelräder

## Bevel Gears



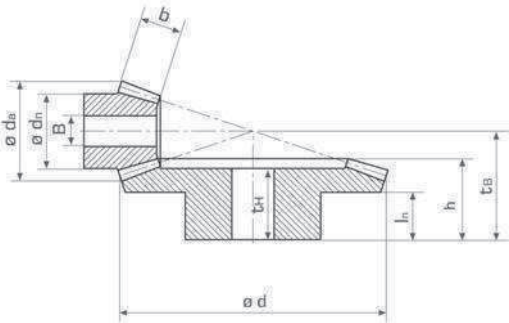
**Übersetzung | Ratio** **i = 1:2,5**

geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Material | material **1.0503 [C45]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$  | $d$   | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | $t_E$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|--------|-------|------|-------|-------|------|-------|------|-------|-------|-------|-------------------------|
| 1,0             | 16                     | 17,86  | 16,0  | 6,0  | 7,5   | 13,5  | 5,0  | 28,0  | 13,8 | 13,0  | 8,37  | 0,013 | 151-410-016             |
|                 | 40                     | 40,74  | 40,0  | 6,0  | 9,0   | 25,0  | 8,0  | 21,0  | 15,9 | 14,0  | 13,93 | 0,075 | 151-410-040             |
| 1,5             | 16                     | 26,79  | 24,0  | 9,0  | 11,2  | 20,0  | 8,0  | 42,0  | 20,8 | 19,5  | 12,56 | 0,041 | 151-415-016             |
|                 | 40                     | 61,11  | 60,0  | 9,0  | 13,5  | 38,0  | 12,0 | 30,0  | 22,3 | 20,0  | 19,39 | 0,232 | 151-415-040             |
| 2,0             | 16                     | 35,71  | 32,0  | 13,5 | 13,8  | 26,0  | 12,0 | 55,0  | 28,0 | 26,0  | 15,74 | 0,091 | 151-420-016             |
|                 | 40                     | 81,49  | 80,0  | 13,5 | 18,0  | 50,0  | 18,0 | 39,0  | 29,3 | 26,0  | 24,86 | 0,515 | 151-420-040             |
| 2,5             | 16                     | 44,64  | 40,0  | 17,0 | 15,4  | 32,0  | 14,0 | 67,0  | 33,4 | 32,0  | 17,93 | 0,174 | 151-425-016             |
|                 | 40                     | 101,86 | 100,0 | 17,0 | 20,0  | 60,0  | 20,0 | 46,0  | 33,9 | 30,0  | 28,32 | 0,930 | 151-425-040             |
| 3,0             | 16                     | 53,57  | 48,0  | 20,0 | 17,4  | 40,0  | 16,0 | 79,0  | 38,3 | 36,0  | 20,11 | 0,305 | 151-430-016             |
|                 | 40                     | 122,23 | 120,0 | 20,0 | 23,0  | 70,0  | 22,0 | 55,0  | 40,3 | 36,0  | 33,78 | 1,63  | 151-430-040             |
| 3,5             | 16                     | 62,50  | 56,0  | 23,5 | 18,8  | 45,0  | 18,0 | 91,0  | 43,7 | 41,0  | 22,30 | 0,47  | 151-435-016             |
|                 | 40                     | 142,60 | 140,0 | 23,5 | 26,0  | 80,0  | 25,0 | 62,0  | 45,0 | 40,0  | 37,25 | 2,37  | 151-435-040             |
| 4,0             | 16                     | 71,43  | 64,0  | 27,0 | 21,6  | 52,0  | 20,0 | 104,0 | 50,1 | 47,0  | 25,49 | 0,72  | 151-440-016             |
|                 | 40                     | 162,97 | 160,0 | 27,0 | 30,0  | 90,0  | 30,0 | 72,0  | 52,6 | 46,0  | 43,71 | 3,56  | 151-440-040             |
| 4,5             | 16                     | 80,36  | 72,0  | 30,0 | 23,6  | 60,0  | 22,0 | 116,0 | 55,0 | 52,0  | 27,67 | 1,04  | 151-445-016             |
|                 | 40                     | 183,34 | 180,0 | 30,0 | 34,0  | 100,0 | 35,0 | 81,0  | 59,0 | 52,0  | 49,18 | 4,98  | 151-445-040             |
| 5,0             | 16                     | 89,28  | 80,0  | 33,0 | 26,0  | 65,0  | 25,0 | 129,0 | 60,9 | 58,0  | 30,86 | 1,37  | 151-450-016             |
|                 | 40                     | 203,71 | 200,0 | 33,0 | 36,0  | 110,0 | 40,0 | 88,0  | 63,5 | 56,0  | 52,64 | 6,60  | 151-450-040             |
| 6,0             | 16                     | 107,14 | 96,0  | 36,5 | 26,8  | 80,0  | 25,0 | 150,0 | 65,5 | 62,0  | 32,23 | 2,48  | 151-460-016             |
|                 | 40                     | 244,46 | 240,0 | 36,5 | 34,0  | 125,0 | 40,0 | 95,0  | 64,5 | 55,0  | 52,57 | 12,35 | 151-460-040             |

# Kegelräder

## Bevel Gears



**Übersetzung | Ratio** **i = 1:3**

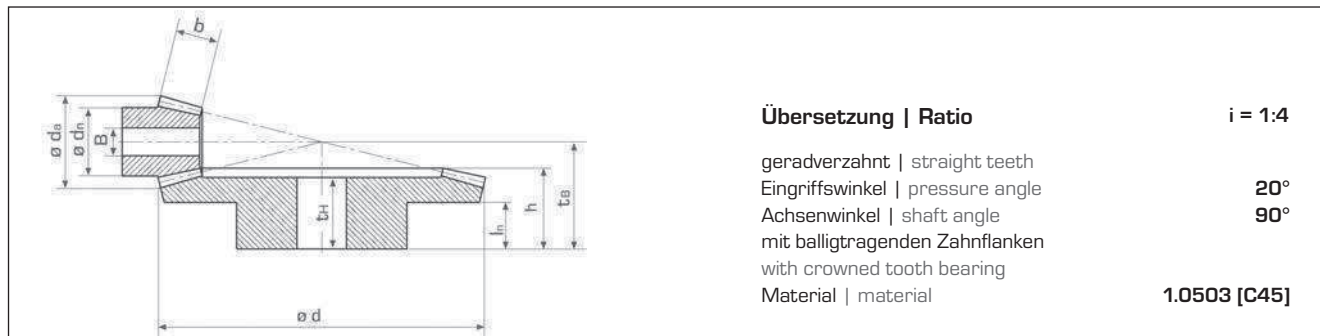
geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Material | material **1.0503 [C45]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$  | $d$   | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | $t_E$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|--------|-------|------|-------|-------|------|-------|------|-------|-------|-------|-------------------------|
| 1,0             | 15                     | 16,90  | 15,0  | 7,0  | 8,1   | 12,5  | 5,0  | 31,0  | 15,4 | 14,5  | 8,82  | 0,012 | 151-510-015             |
|                 | 45                     | 45,63  | 45,0  | 7,0  | 10,0  | 28,0  | 10,0 | 22,0  | 17,4 | 15,5  | 15,45 | 0,102 | 151-510-045             |
| 1,5             | 15                     | 25,35  | 22,5  | 10,0 | 11,7  | 19,0  | 8,0  | 46,0  | 22,1 | 21,0  | 12,72 | 0,039 | 151-515-015             |
|                 | 45                     | 68,45  | 67,5  | 10,0 | 14,5  | 40,0  | 14,0 | 31,0  | 23,9 | 21,5  | 21,17 | 0,300 | 151-515-045             |
| 2,0             | 15                     | 33,79  | 30,0  | 14,0 | 14,2  | 25,0  | 12,0 | 60,0  | 28,7 | 27,0  | 15,63 | 0,082 | 151-520-015             |
|                 | 45                     | 91,26  | 90,0  | 14,0 | 20,0  | 50,0  | 18,0 | 41,0  | 31,8 | 28,0  | 27,90 | 0,632 | 151-520-045             |
| 2,5             | 15                     | 42,24  | 37,5  | 17,5 | 15,7  | 31,0  | 14,0 | 73,0  | 33,9 | 32,0  | 17,54 | 0,155 | 151-525-015             |
|                 | 45                     | 114,08 | 112,5 | 17,5 | 22,0  | 60,0  | 20,0 | 48,0  | 36,4 | 32,0  | 31,62 | 1,15  | 151-525-045             |
| 3,0             | 15                     | 50,69  | 45,0  | 21,0 | 17,3  | 38,0  | 16,0 | 86,0  | 39,1 | 37,0  | 19,45 | 0,275 | 151-530-015             |
|                 | 45                     | 136,90 | 135,0 | 21,0 | 25,0  | 70,0  | 22,0 | 56,0  | 42,1 | 37,0  | 36,35 | 1,90  | 151-530-045             |
| 3,5             | 15                     | 59,14  | 52,5  | 24,5 | 19,8  | 44,0  | 18,0 | 100,0 | 45,3 | 43,0  | 22,36 | 0,44  | 151-535-015             |
|                 | 45                     | 159,71 | 157,5 | 24,5 | 28,0  | 80,0  | 25,0 | 64,0  | 47,8 | 42,0  | 41,07 | 2,95  | 151-535-045             |
| 4,0             | 15                     | 67,59  | 60,0  | 28,0 | 22,3  | 50,0  | 20,0 | 114,0 | 51,4 | 49,0  | 25,26 | 0,65  | 151-540-015             |
|                 | 45                     | 182,53 | 180,0 | 28,0 | 32,0  | 90,0  | 30,0 | 73,0  | 54,5 | 48,0  | 46,79 | 4,32  | 151-540-045             |
| 4,5             | 15                     | 76,04  | 67,5  | 31,0 | 24,7  | 55,0  | 22,0 | 128,0 | 57,2 | 54,0  | 28,17 | 0,91  | 151-545-015             |
|                 | 45                     | 205,35 | 202,5 | 31,0 | 35,0  | 105,0 | 35,0 | 81,0  | 60,1 | 53,0  | 51,52 | 6,18  | 151-545-045             |
| 5,0             | 15                     | 84,49  | 75,0  | 34,0 | 27,0  | 60,0  | 25,0 | 142,0 | 62,9 | 60,0  | 31,08 | 1,21  | 151-550-015             |
|                 | 45                     | 228,16 | 225,0 | 34,0 | 38,0  | 120,0 | 40,0 | 89,0  | 65,6 | 58,0  | 56,24 | 8,66  | 151-550-045             |
| 6,0             | 15                     | 101,38 | 90,0  | 41,0 | 27,5  | 75,0  | 25,0 | 165,0 | 70,3 | 66,0  | 31,90 | 2,42  | 151-560-015             |
|                 | 45                     | 273,79 | 270,0 | 41,0 | 35,0  | 140,0 | 45,0 | 98,0  | 70,0 | 60,0  | 58,69 | 17,51 | 151-560-045             |



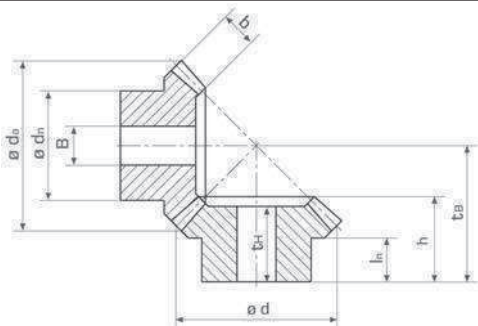
# Kegelräder

## Bevel Gears



| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$  | $d$   | $b$  | $l_H$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | $t_E$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|--------|-------|------|-------|-------|------|-------|------|-------|-------|-------|-------------------------|
| 1,0             | 15                     | 16,94  | 15,0  | 9,0  | 7,7   | 12,5  | 5,0  | 38,0  | 16,9 | 16,5  | 8,24  | 0,012 | 151-710-015             |
|                 | 60                     | 60,49  | 60,0  | 9,0  | 10,0  | 35,0  | 12,0 | 23,0  | 18,1 | 16,5  | 16,47 | 0,195 | 151-710-060             |
| 1,5             | 15                     | 25,41  | 22,5  | 12,0 | 11,6  | 19,0  | 8,0  | 57,0  | 23,9 | 23,0  | 12,36 | 0,042 | 151-715-015             |
|                 | 60                     | 90,73  | 90,0  | 12,0 | 15,5  | 50,0  | 16,0 | 33,0  | 25,7 | 23,0  | 23,21 | 0,570 | 151-715-060             |
| 2,0             | 15                     | 33,88  | 30,0  | 16,0 | 14,4  | 25,0  | 12,0 | 75,0  | 30,9 | 30,0  | 15,48 | 0,092 | 151-720-015             |
|                 | 60                     | 120,97 | 120,0 | 16,0 | 22,0  | 65,0  | 20,0 | 45,0  | 35,3 | 32,0  | 31,94 | 1,335 | 151-720-060             |
| 2,5             | 15                     | 42,35  | 37,5  | 20,0 | 17,2  | 31,0  | 14,0 | 93,0  | 37,9 | 36,0  | 18,60 | 0,180 | 151-725-015             |
|                 | 60                     | 151,21 | 150,0 | 20,0 | 25,0  | 80,0  | 22,0 | 53,0  | 40,9 | 36,0  | 36,68 | 2,37  | 151-725-060             |
| 3,0             | 15                     | 50,82  | 45,0  | 24,0 | 20,1  | 38,0  | 16,0 | 111,0 | 44,8 | 43,0  | 21,73 | 0,325 | 151-730-015             |
|                 | 60                     | 181,46 | 180,0 | 24,0 | 28,0  | 95,0  | 28,0 | 62,0  | 47,5 | 42,0  | 42,41 | 4,06  | 151-730-060             |
| 3,5             | 15                     | 59,29  | 52,5  | 28,0 | 22,9  | 44,0  | 18,0 | 129,0 | 51,8 | 50,0  | 24,85 | 0,515 | 151-735-015             |
|                 | 60                     | 211,70 | 210,0 | 28,0 | 30,0  | 110,0 | 32,0 | 69,0  | 52,1 | 46,0  | 46,15 | 6,16  | 151-735-060             |
| 4,0             | 15                     | 67,76  | 60,0  | 32,0 | 23,5  | 48,0  | 20,0 | 145,0 | 56,8 | 55,0  | 25,97 | 0,860 | 151-740-015             |
|                 | 60                     | 241,94 | 240,0 | 32,0 | 35,0  | 125,0 | 35,0 | 80,0  | 60,6 | 53,0  | 53,88 | 9,06  | 151-740-060             |
| 4,5             | 15                     | 76,23  | 67,5  | 36,0 | 25,4  | 55,0  | 22,0 | 162,0 | 62,7 | 60,0  | 28,09 | 1,24  | 151-745-015             |
|                 | 60                     | 272,18 | 270,0 | 36,0 | 37,0  | 140,0 | 40,0 | 88,0  | 66,2 | 57,0  | 58,62 | 12,95 | 151-745-060             |
| 5,0             | 15                     | 84,70  | 75,0  | 40,0 | 28,1  | 60,0  | 25,0 | 180,0 | 69,7 | 67,0  | 31,21 | 1,76  | 151-750-015             |
|                 | 60                     | 302,42 | 300,0 | 40,0 | 38,0  | 160,0 | 45,0 | 95,0  | 70,8 | 62,0  | 62,35 | 17,82 | 151-750-060             |
| 6,0             | 15                     | 101,64 | 90,0  | 45,0 | 28,1  | 75,0  | 25,0 | 210,0 | 74,7 | 71,0  | 31,45 | 2,42  | 151-760-015             |
|                 | 60                     | 362,91 | 360,0 | 45,0 | 38,0  | 180,0 | 50,0 | 103,0 | 73,3 | 62,0  | 63,82 | 25,15 | 151-760-060             |

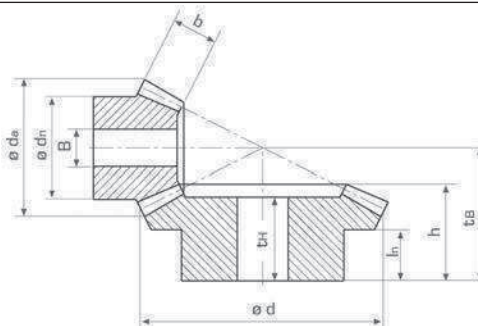
## Kegelräder Kunststoff gespritzt

**Moulded Bevel Gears**


**Übersetzung | Ratio** **i = 1:1**

geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Azetalharz | injection moulded  
 gespritzt | acetal resin **[Hostaform C]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$ | $d$  | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|-------|------|------|-------|-------|------|-------|------|-------|-------|-------------------------|
| 0,5             | 16                     | 8,7   | 8,0  | 2,0  | 6,0   | 7,0   | 3,0  | 10,5  | 8,0  | 8,0   | 0,001 | 159-105-016             |
| 1,0             | 16                     | 17,6  | 16,0 | 4,7  | 8,0   | 12,0  | 5,0  | 18,4  | 13,6 | 13,6  | 0,002 | 159-110-016             |
|                 | 30                     | 31,4  | 30,0 | 7,4  | 7,4   | 15,0  | 6,0  | 24,8  | 15,3 | 12,9  | 0,006 | 159-110-030             |
| 1,5             | 16                     | 26,4  | 24,0 | 7,0  | 10,0  | 18,5  | 8,0  | 25,8  | 18,4 | 16,2  | 0,006 | 159-115-016             |
| 2,0             | 16                     | 34,9  | 32,0 | 10,0 | 9,6   | 21,9  | 10,0 | 30,4  | 21,2 | 18,3  | 0,011 | 159-120-016             |
| 2,5             | 16                     | 43,5  | 40,0 | 12,3 | 11,5  | 25,2  | 12,0 | 37,0  | 25,5 | 22,9  | 0,019 | 159-125-016             |
| 3,0             | 16                     | 52,3  | 48,0 | 13,8 | 13,2  | 28,8  | 14,0 | 43,0  | 29,2 | 25,8  | 0,030 | 159-130-016             |
| 3,5             | 16                     | 61,4  | 56,0 | 15,8 | 14,4  | 33,3  | 18,0 | 49,5  | 33,1 | 28,1  | 0,048 | 159-135-016             |



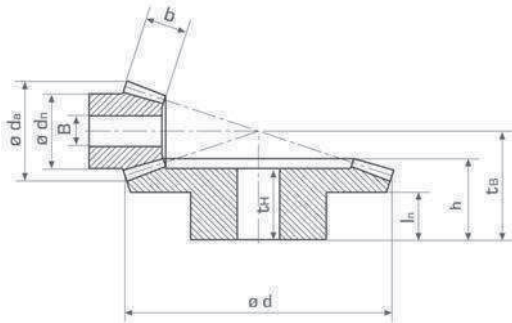
**Übersetzung | Ratio** **i = 1:2**

geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Azetalharz | injection moulded  
 gespritzt | acetal resin **[Hostaform C]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$ | $d$  | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|-------|------|------|-------|-------|------|-------|------|-------|-------|-------------------------|
| 1,0             | 15                     | 16,8  | 15,0 | 6,6  | 10,6  | 12,2  | 5,0  | 26,4  | 17,0 | 17,0  | 0,002 | 159-310-015             |
|                 | 30                     | 31,1  | 30,0 | 6,6  | 9,1   | 18,0  | 8,0  | 20,9  | 16,2 | 14,8  | 0,007 | 159-310-030             |
| 1,5             | 15                     | 25,4  | 22,5 | 10,5 | 11,5  | 17,0  | 8,0  | 35,8  | 22,8 | 22,8  | 0,007 | 159-315-015             |
|                 | 30                     | 46,4  | 45,0 | 10,5 | 9,6   | 23,4  | 10,0 | 26,2  | 19,5 | 17,5  | 0,018 | 159-315-030             |
| 2,0             | 15                     | 33,6  | 30,0 | 14,6 | 11,8  | 22,5  | 10,0 | 44,2  | 27,0 | 26,0  | 0,013 | 159-320-015             |
|                 | 30                     | 62,2  | 60,0 | 14,6 | 11,8  | 30,2  | 12,0 | 32,6  | 24,2 | 22,6  | 0,040 | 159-320-030             |
| 2,5             | 15                     | 42,0  | 37,5 | 17,3 | 13,0  | 26,5  | 12,0 | 53,3  | 31,2 | 29,6  | 0,023 | 159-325-015             |
|                 | 30                     | 77,3  | 75,0 | 17,3 | 15,0  | 36,1  | 16,0 | 40,5  | 29,5 | 27,5  | 0,077 | 159-325-030             |
| 3,0             | 15                     | 50,3  | 45,0 | 20,5 | 14,8  | 31,2  | 14,0 | 63,3  | 36,3 | 35,0  | 0,037 | 159-330-015             |
|                 | 30                     | 93,0  | 90,0 | 20,5 | 19,0  | 45,0  | 18,0 | 49,5  | 37,0 | 34,2  | 0,135 | 159-330-030             |

## Kegelräder Kunststoff gespritzt

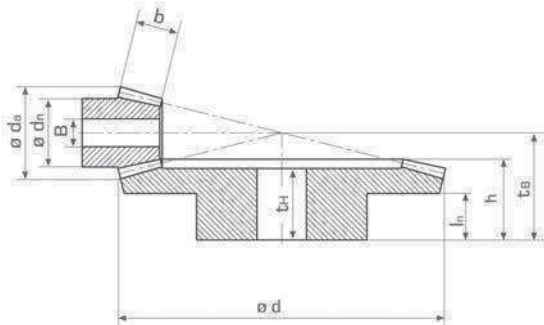
### Moulded Bevel Gears



**Übersetzung | Ratio** **i = 1:3**

geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Azetalharz | injection moulded  
 gespritzt | acetal resin **[Hostaform C]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$ | $d$  | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|-------|------|------|-------|-------|------|-------|------|-------|-------|-------------------------|
| 1,0             | 15                     | 16,6  | 15,0 | 9,2  | 11,0  | 12,3  | 5,0  | 34,3  | 20,4 | 20,4  | 0,003 | 159-510-015             |
|                 | 45                     | 46,1  | 45,0 | 9,2  | 9,6   | 23,4  | 10,0 | 22,7  | 18,2 | 16,5  | 0,018 | 159-510-045             |
| 1,5             | 15                     | 25,1  | 22,5 | 14,0 | 12,5  | 17,2  | 8,0  | 47,9  | 26,8 | 26,8  | 0,008 | 159-515-015             |
|                 | 45                     | 68,8  | 67,5 | 14,0 | 11,5  | 30,4  | 12,0 | 29,4  | 23,0 | 21,5  | 0,048 | 159-515-045             |
| 2,0             | 10                     | 24,0  | 20,0 | 12,5 | 12,0  | 16,6  | 6,0  | 43,7  | 25,0 | 25,0  | 0,006 | 159-520-010             |
|                 | 30                     | 61,7  | 60,0 | 12,5 | 11,5  | 30,3  | 12,0 | 28,0  | 22,5 | 20,2  | 0,038 | 159-520-030             |
| 2,5             | 10                     | 29,7  | 25,0 | 15,7 | 13,0  | 18,8  | 8,0  | 52,4  | 28,8 | 28,8  | 0,010 | 159-525-010             |
|                 | 30                     | 77,2  | 75,0 | 15,7 | 15,5  | 36,1  | 18,0 | 35,7  | 29,0 | 25,2  | 0,067 | 159-525-030             |



**Übersetzung | Ratio** **i = 1:4**

geradverzahnt | straight teeth  
 Eingriffswinkel | pressure angle **20°**  
 Achsenwinkel | shaft angle **90°**  
 mit balligtragenden Zahnflanken  
 with crowned tooth bearing  
 Azetalharz | injection moulded  
 gespritzt | acetal resin **[Hostaform C]**

| Modul<br>Module | Zähnezahl<br>No. teeth | $d_a$ | $d$  | $b$  | $l_n$ | $d_n$ | $B$  | $t_B$ | $h$  | $t_H$ | [kg]  | Bestell Nr.<br>Part No. |
|-----------------|------------------------|-------|------|------|-------|-------|------|-------|------|-------|-------|-------------------------|
| 1,0             | 10                     | 12,0  | 10,0 | 8,2  | 9,3   | 7,8   | 4,0  | 30,1  | 17,7 | 17,7  | 0,001 | 159-710-010             |
|                 | 40                     | 40,8  | 40,0 | 8,2  | 10,8  | 23,4  | 10,0 | 20,1  | 17,0 | 15,7  | 0,013 | 159-710-040             |
| 1,5             | 10                     | 18,0  | 15,0 | 12,3 | 10,9  | 11,3  | 5,0  | 41,7  | 23,5 | 23,5  | 0,003 | 159-715-010             |
|                 | 40                     | 61,2  | 60,0 | 12,3 | 12,8  | 30,4  | 12,0 | 26,2  | 21,7 | 20,0  | 0,031 | 159-715-040             |
| 2,0             | 10                     | 23,8  | 20,0 | 16,3 | 12,8  | 14,3  | 6,0  | 54,0  | 28,9 | 28,9  | 0,006 | 159-720-010             |
|                 | 40                     | 81,5  | 80,0 | 16,3 | 16,6  | 36,0  | 18,0 | 32,5  | 27,0 | 24,7  | 0,062 | 159-720-040             |

