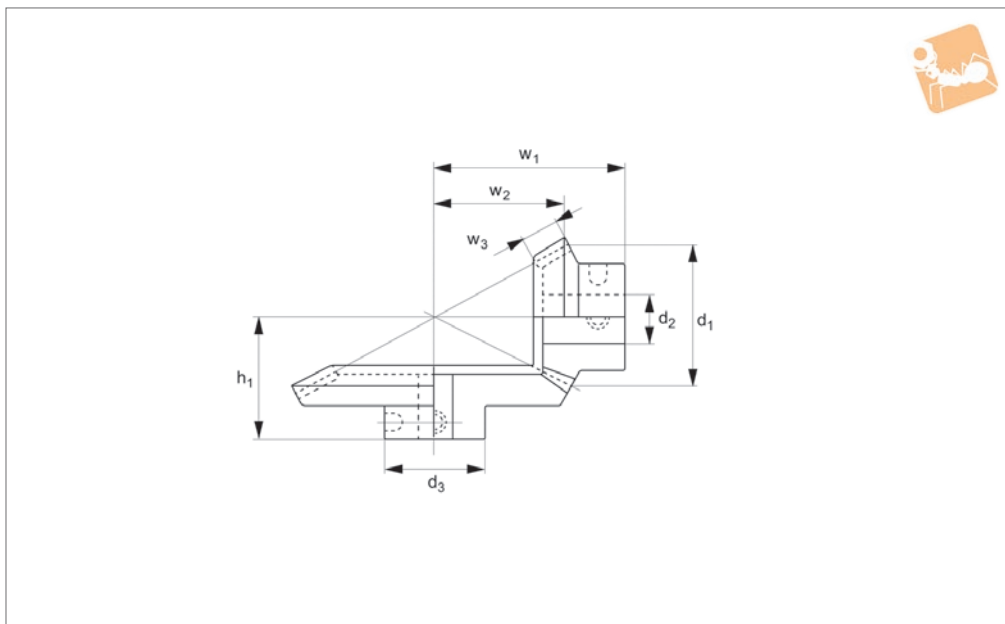
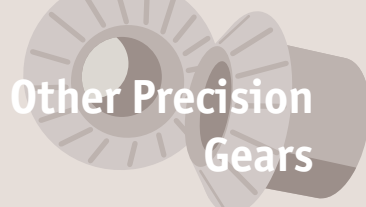




# 1,5 Module Mitre & Bevel gears

stainless/aluminium



**R2100**

OTHER PRECISION GEARS

## Material

Stainless steel (DIN 1,4305) or aluminium (DIN 3,1355).

Quality class DIN 7, AGMA 10.

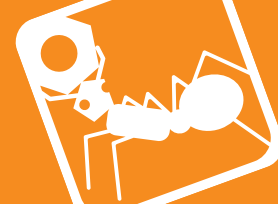
## Tips

Gears will only mesh at right angles when used as sets described in chart.

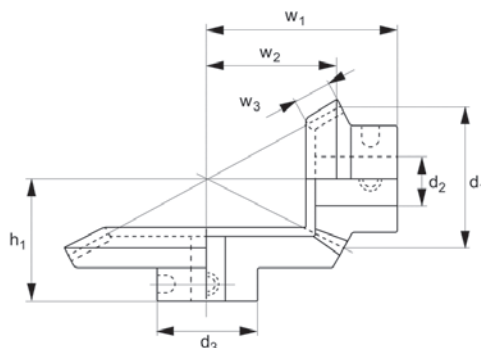
## Technical Notes

20° pressure angle.

| Order No.  | d <sub>1</sub><br>(gear) | d <sub>1</sub><br>(pinion) | d <sub>2</sub><br>tol. H7 | d <sub>3</sub> | Ratio  | No. of teeth<br>(pinion) | No. of teeth<br>(gear) | w <sub>1</sub> | w <sub>2</sub><br>(gear) | w <sub>2</sub><br>(pinion) | w <sub>3</sub> | h <sub>1</sub> | Material<br>(pinion) | Material<br>(gear) |
|------------|--------------------------|----------------------------|---------------------------|----------------|--------|--------------------------|------------------------|----------------|--------------------------|----------------------------|----------------|----------------|----------------------|--------------------|
| R2100.001  | 30                       | 30                         | Ø12                       | 26             | 1 to 1 | 20                       | 20                     | 32,0           | 13,94                    | 13,94                      | 8              | 32             | Stainless            | Aluminium          |
| R2100.001S | 30                       | 30                         | Ø12                       | 26             | 1 to 1 | 20                       | 20                     | 32,0           | 13,94                    | 13,94                      | 8              | 32             | Stainless            | Stainless          |
| R2100.001A | 30                       | 30                         | Ø12                       | 26             | 1 to 1 | 20                       | 20                     | 32,0           | 13,94                    | 13,94                      | 8              | 32             | Aluminium            | Aluminium          |
| R2100.002  | 60                       | 30                         | Ø12                       | 26             | 1 to 2 | 20                       | 40                     | 47,5           | 14,12                    | 29,10                      | 8              | 32             | Stainless            | Aluminium          |
| R2100.003  | 90                       | 30                         | Ø12                       | 26             | 1 to 3 | 20                       | 60                     | 63,5           | 14,16                    | 44,33                      | 8              | 32             | Stainless            | Aluminium          |
| R2100.001P |                          | 30                         | Ø12                       | 26             | 1 to 1 | 20                       |                        | 32,0           |                          | 13,94                      | 8              | 32             | Stainless            |                    |
| R2100.001G | 30                       |                            | Ø12                       | 26             | 1 to 1 |                          | 20                     | 32,0           | 13,94                    |                            | 8              | 32             |                      | Aluminium          |



## R2102



### Material

Stainless steel (DIN 1,4305) or aluminium (DIN 3,1355).

Quality class DIN 7, AGMA 10.

### Tips

Gears will only mesh at right angles when used as sets described in chart.

### Technical Notes

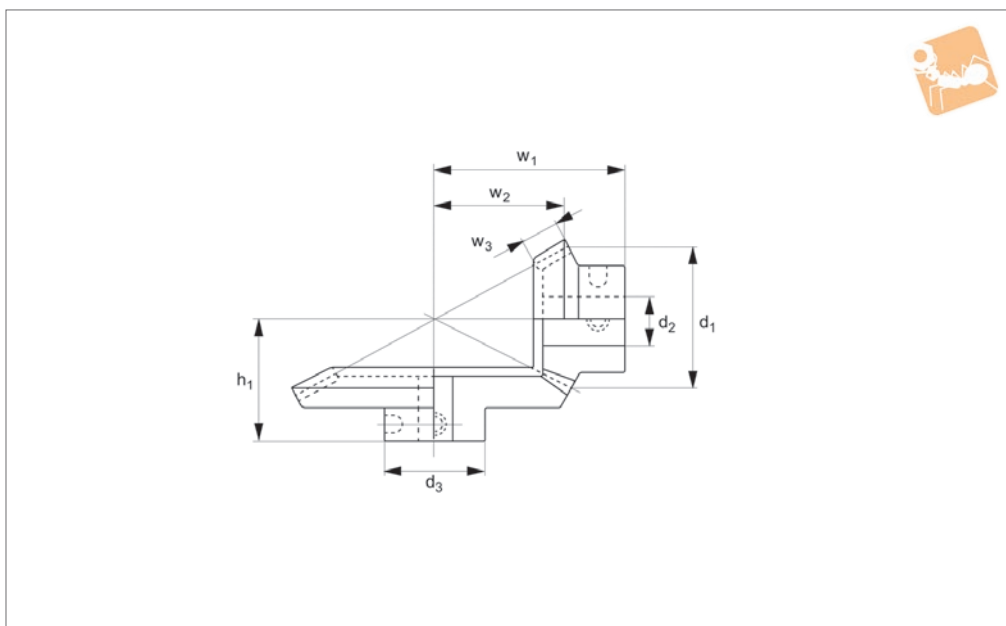
20° pressure angle.

| Order No.  | d <sub>1</sub><br>(gear) | d <sub>1</sub><br>(pinion) | d <sub>2</sub><br>tol. H7 | d <sub>3</sub> | Ratio  | No. of teeth<br>(pinion) | No. of teeth<br>(gear) | w <sub>1</sub> | w <sub>2</sub><br>(gear) | w <sub>2</sub><br>(pinion) | w <sub>3</sub> | h <sub>1</sub> | Material<br>(pinion) | Material<br>(gear) |
|------------|--------------------------|----------------------------|---------------------------|----------------|--------|--------------------------|------------------------|----------------|--------------------------|----------------------------|----------------|----------------|----------------------|--------------------|
| R2102.001  | 24                       | 24                         | Ø10                       | 19             | 1 to 1 | 24                       | 24                     | 25,5           | 11,29                    | 11,29                      | 7              | 25,5           | Stainless            | Aluminium          |
| R2102.001S |                          | 24                         | Ø10                       | 19             | 1 to 1 | 24                       | 24                     | 25,5           | 11,29                    | 11,29                      | 7              | 25,5           | Stainless            | Stainless          |
| R2102.001A | 24                       | 24                         | Ø10                       | 19             | 1 to 1 | 24                       | 24                     | 25,5           | 11,29                    | 11,29                      | 7              | 25,5           | Aluminium            | Aluminium          |
| R2102.002  | 58                       | 24                         | Ø10                       | 19             | 1 to 2 | 24                       | 48                     | 38,0           | 11,42                    | 23,40                      | 7              | 25,5           | Stainless            | Aluminium          |
| R2102.003  | 72                       | 24                         | Ø10                       | 19             | 1 to 3 | 24                       | 72                     | 51,0           | 11,44                    | 35,56                      | 7              | 25,5           | Stainless            | Aluminium          |
| R2102.004  | 96                       | 24                         | Ø10                       | 19             | 1 to 4 | 24                       | 96                     | 63,5           | 11,45                    | 47,65                      | 7              | 25,5           | Stainless            | Aluminium          |
| R2102.001P |                          | 24                         | Ø10                       | 19             | 1 to 1 | 24                       |                        | 25,5           |                          | 11,29                      | 7              | 25,5           | Stainless            |                    |
| R2102.001G | 24                       |                            | Ø10                       | 19             | 1 to 1 |                          | 24                     | 25,5           | 11,29                    |                            | 7              | 25,5           |                      | Aluminium          |



# 0,8 Module Mitre & Bevel gears stainless/aluminium

Other Precision  
Gears



**R2104**

OTHER PRECISION GEARS

## Material

Stainless steel (DIN 1,4305) or aluminium (DIN 3,1355).

Quality class DIN 7, AGMA 10.

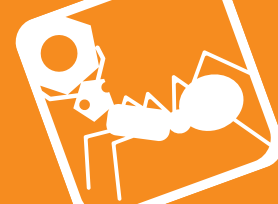
## Tips

Gears will only mesh at right angles when used as sets described in chart.

## Technical Notes

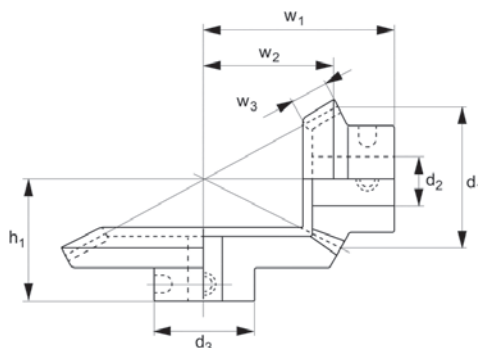
20° pressure angle.

| Order No.  | d <sub>1</sub><br>(gear) | d <sub>1</sub><br>(pinion) | d <sub>2</sub><br>tol. H7 | d <sub>3</sub> | Ratio  | No. of teeth<br>(pinion) | No. of teeth<br>(gear) | w <sub>1</sub> | w <sub>2</sub><br>(gear) | w <sub>2</sub><br>(pinion) | w <sub>3</sub> | h <sub>1</sub> | Material<br>(pinion) | Material<br>(gear) |
|------------|--------------------------|----------------------------|---------------------------|----------------|--------|--------------------------|------------------------|----------------|--------------------------|----------------------------|----------------|----------------|----------------------|--------------------|
| R2104.001  | 19,20                    | 19,20                      | Ø8                        | 16             | 1 to 1 | 24                       | 24                     | 19,0           | 9,03                     | 9,03                       | 7              | 19             | Stainless            | Aluminium          |
| R2104.001S |                          | 19,20                      | Ø8                        | 16             | 1 to 1 | 24                       | 24                     | 19,0           | 9,03                     | 9,03                       | 7              | 19             | Stainless            | Stainless          |
| R2104.001A | 19,20                    | 19,20                      | Ø8                        | 16             | 1 to 1 | 24                       | 24                     | 19,0           | 9,03                     | 9,03                       | 7              | 19             | Aluminium            | Aluminium          |
| R2104.002  | 38,40                    | 19,20                      | Ø8                        | 16             | 1 to 2 | 24                       | 48                     | 28,5           | 9,13                     | 18,72                      | 7              | 19             | Stainless            | Aluminium          |
| R2104.003  | 57,60                    | 19,20                      | Ø8                        | 16             | 1 to 3 | 24                       | 72                     | 38,0           | 9,15                     | 28,44                      | 7              | 19             | Stainless            | Aluminium          |
| R2104.004  | 76,80                    | 19,20                      | Ø8                        | 16             | 1 to 4 | 24                       | 96                     | 47,5           | 9,16                     | 38,12                      | 7              | 19             | Stainless            | Aluminium          |
| R2104.001P |                          | 19,20                      | Ø8                        | 16             | 1 to 1 | 24                       |                        | 19,0           |                          | 9,03                       | 7              | 19             | Stainless            |                    |
| R2104.001G | 19,20                    |                            | Ø8                        | 16             | 1 to 1 |                          | 24                     | 19,0           | 9,03                     |                            | 7              | 19             |                      | Aluminium          |



### R2106

OTHER PRECISION GEARS



#### Material

Stainless steel (DIN 1,4305) or aluminium (DIN 3,1355).

Quality class DIN 7, AGMA 10.

#### Tips

Gears will only mesh at right angles when used as sets described in chart.

#### Technical Notes

20° pressure angle.

| Order No.  | d <sub>1</sub><br>(gear) | d <sub>1</sub><br>(pinion) | d <sub>2</sub><br>tol. H7 | d <sub>3</sub> | Ratio  | No. of teeth<br>(pinion) | No. of teeth<br>(gear) | w <sub>1</sub> | w <sub>2</sub><br>(gear) | w <sub>2</sub><br>(pinion) | w <sub>3</sub> | h <sub>1</sub> | Material<br>(pinion) | Material<br>(gear) |
|------------|--------------------------|----------------------------|---------------------------|----------------|--------|--------------------------|------------------------|----------------|--------------------------|----------------------------|----------------|----------------|----------------------|--------------------|
| R2106.001  | 18                       | 18                         | Ø8                        | 13             | 1 to 1 | 30                       | 30                     | 18             | 8,58                     | 8,58                       | 5              | 18             | Stainless            | Aluminium          |
| R2106.001S | 18                       | 18                         | Ø8                        | 13             | 1 to 1 | 30                       | 30                     | 18             | 8,58                     | 8,58                       | 5              | 18             | Stainless            | Stainless          |
| R2106.001A | 18                       | 18                         | Ø8                        | 13             | 1 to 1 | 30                       | 30                     | 18             | 8,58                     | 8,58                       | 5              | 18             | Aluminium            | Aluminium          |
| R2106.002  | 36                       | 18                         | Ø8                        | 13             | 1 to 2 | 30                       | 60                     | 26             | 8,65                     | 17,64                      | 5              | 18             | Stainless            | Aluminium          |
| R2106.003  | 54                       | 18                         | Ø8                        | 13             | 1 to 3 | 30                       | 90                     | 36             | 8,66                     | 26,73                      | 5              | 18             | Stainless            | Aluminium          |
| R2106.004  | 72                       | 18                         | Ø8                        | 13             | 1 to 4 | 30                       | 120                    | 44             | 8,67                     | 35,79                      | 5              | 18             | Stainless            | Aluminium          |
| R2106.001P |                          | 18                         | Ø8                        | 13             | 1 to 1 | 30                       |                        | 18             |                          | 8,58                       | 5              | 18             | Stainless            |                    |
| R2106.001G | 18                       |                            | Ø8                        | 13             | 1 to 1 |                          | 30                     | 18             | 8,58                     |                            | 5              | 18             |                      | Aluminium          |



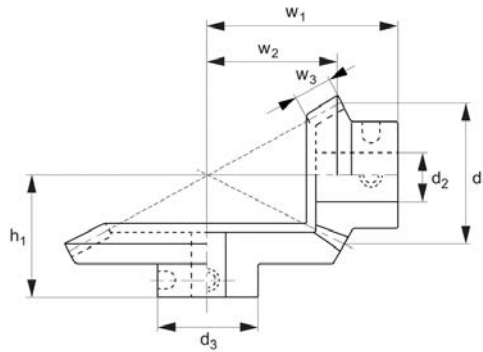
# 0,5 Module Mitre & Bevel gears stainless/aluminium

Other Precision  
Gears



**R2108**

OTHER PRECISION GEARS



## Material

Stainless steel (DIN 1,4305) or aluminium (DIN 3,1355).

Quality class DIN 7, AGMA 10.

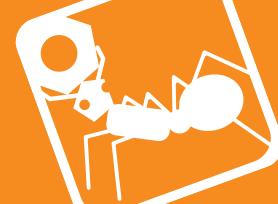
## Tips

Gears will only mesh at right angles when used as sets described in chart.

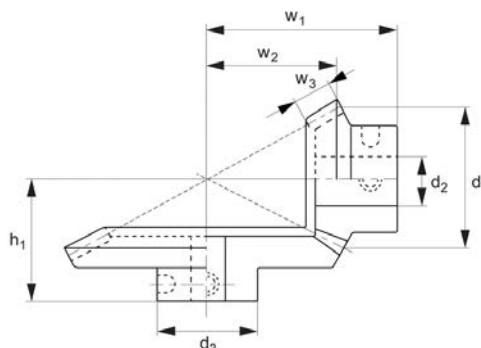
## Technical Notes

20° pressure angle.

| Order No.        | d <sub>1</sub><br>(gear) | d <sub>1</sub><br>(pinion) | d <sub>2</sub><br>tol. H7 | d <sub>3</sub> | Ratio  | No. of teeth<br>(pinion) | No. of teeth<br>(gear) | w <sub>1</sub> | w <sub>2</sub><br>(gear) | w <sub>2</sub><br>(pinion) | w <sub>3</sub> | h <sub>1</sub> | Material<br>(pinion) | Material<br>(gear) |
|------------------|--------------------------|----------------------------|---------------------------|----------------|--------|--------------------------|------------------------|----------------|--------------------------|----------------------------|----------------|----------------|----------------------|--------------------|
| <b>R2108.01</b>  | 16                       | 16                         | Ø5                        | 10             | 1 to 1 | 30                       | 30                     | 15             | 7,65                     | 7,65                       | 4              | 15             | Stainless            | Aluminium          |
| <b>R2108.01S</b> | 16                       | 16                         | Ø5                        | 10             | 1 to 1 | 30                       | 30                     | 15             | 7,65                     | 7,65                       | 4              | 15             | Stainless            | Stainless          |
| <b>R2108.01A</b> | 16                       | 16                         | Ø5                        | 10             | 1 to 1 | 30                       | 30                     | 15             | 7,65                     | 7,65                       | 4              | 15             | Aluminium            | Aluminium          |
| <b>R2108.02</b>  | 32                       | 16                         | Ø5                        | 10             | 1 to 2 | 30                       | 60                     | 23             | 7,71                     | 15,70                      | 4              | 15             | Stainless            | Aluminium          |
| <b>R2108.03</b>  | 48                       | 16                         | Ø5                        | 10             | 1 to 3 | 30                       | 90                     | 32             | 7,72                     | 23,78                      | 4              | 15             | Stainless            | Aluminium          |
| <b>R2108.04</b>  | 64                       | 16                         | Ø5                        | 10             | 1 to 4 | 30                       | 120                    | 39             | 7,72                     | 31,83                      | 4              | 15             | Stainless            | Stainless          |
| <b>R2108.01P</b> |                          | 16                         | Ø5                        | 10             | 1 to 1 | 30                       |                        | 15             |                          | 7,65                       | 4              | 15             | Stainless            |                    |
| <b>R2108.01G</b> | 16                       |                            | Ø5                        | 10             | 1 to 1 |                          | 30                     | 15             | 7,65                     |                            | 4              | 15             |                      | Aluminium          |



### R2110



#### Material

Stainless steel (DIN 1,4305) or aluminium (DIN 3,1355).

Quality class DIN 7, AGMA 10.

#### Tips

Gears will only mesh at right angles when used as sets described in chart.

#### Technical Notes

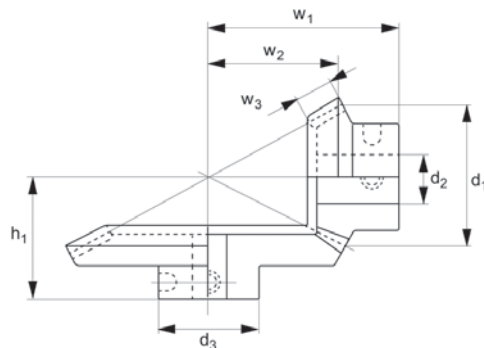
20° pressure angle.

| Order No.  | d <sub>1</sub><br>(gear) | d <sub>1</sub><br>(pinion) | d <sub>2</sub><br>tol. H7 | d <sub>3</sub> | Ratio  | No. of teeth<br>(pinion) | No. of teeth<br>(gear) | w <sub>1</sub> | w <sub>2</sub><br>(gear) | w <sub>2</sub><br>(pinion) | w <sub>3</sub> | h <sub>1</sub> | Material<br>(pinion) | Material<br>(gear) |
|------------|--------------------------|----------------------------|---------------------------|----------------|--------|--------------------------|------------------------|----------------|--------------------------|----------------------------|----------------|----------------|----------------------|--------------------|
| R2110.001  | 14,40                    | 14,40                      | Ø5                        | 10             | 1 to 1 | 36                       | 36                     | 15,0           | 6,92                     | 6,92                       | 4              | 15             | Stainless            | Aluminium          |
| R2110.001S | 14,40                    | 14,40                      | Ø5                        | 10             | 1 to 1 | 36                       | 36                     | 15,0           | 6,92                     | 6,92                       | 4              | 15             | Stainless            | Stainless          |
| R2110.001A | 14,40                    | 14,40                      | Ø5                        | 10             | 1 to 1 | 36                       | 36                     | 15,0           | 6,92                     | 6,92                       | 4              | 15             | Aluminium            | Aluminium          |
| R2110.002  | 28,80                    | 14,40                      | Ø5                        | 10             | 1 to 2 | 36                       | 72                     | 22             | 6,97                     | 14,16                      | 4              | 15             | Stainless            | Aluminium          |
| R2110.003  | 43,20                    | 14,40                      | Ø5                        | 10             | 1 to 3 | 36                       | 108                    | 29,5           | 6,97                     | 21,42                      | 4              | 15             | Stainless            | Aluminium          |
| R2110.001P |                          | 14,40                      | Ø5                        | 10             | 1 to 1 | 36                       |                        | 15,0           |                          | 6,92                       | 4              | 15             | Stainless            |                    |
| R2110.001G | 14,40                    |                            | Ø5                        | 10             | 1 to 1 |                          | 36                     | 15,0           | 6,92                     |                            | 4              | 15             |                      | Aluminium          |



# 0,3 Module Mitre & Bevel gears stainless/aluminium

## Other Precision Gears



**R2112**

OTHER PRECISION GEARS

### Material

Stainless steel (DIN 1,4305) or aluminium (DIN 3,1355).

Quality class DIN 7, AGMA 10.

### Tips

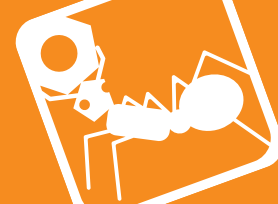
Gears will only mesh at right angles when used as sets described in chart.

### Technical Notes

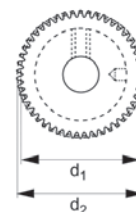
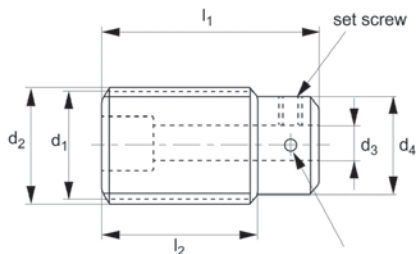
20° pressure angle.

| Order No.  | d <sub>1</sub><br>(gear) | d <sub>1</sub><br>(pinion) | d <sub>2</sub><br>tol. H7 | d <sub>3</sub> | Ratio  | No. of teeth<br>(pinion) | No. of teeth<br>(gear) | w <sub>1</sub> | w <sub>2</sub><br>(gear) | w <sub>2</sub><br>(pinion) | w <sub>3</sub> | h <sub>1</sub> | Material<br>(pinion) | Material<br>(gear) |
|------------|--------------------------|----------------------------|---------------------------|----------------|--------|--------------------------|------------------------|----------------|--------------------------|----------------------------|----------------|----------------|----------------------|--------------------|
| R2112.001  | 10,80                    | 10,80                      | Ø3                        | 8              | 1 to 1 | 36                       | 36                     | 13,0           | 5,19                     | 5,19                       | 3              | 13             | Stainless            | Aluminium          |
| R2112.001S | 10,80                    | 10,80                      | Ø3                        | 8              | 1 to 1 | 36                       | 36                     | 13,0           | 5,19                     | 5,19                       | 3              | 13             | Stainless            | Stainless          |
| R2112.001A | 10,80                    | 10,80                      | Ø3                        | 8              | 1 to 1 | 36                       | 36                     | 13,0           | 5,19                     | 5,19                       | 3              | 13             | Aluminium            | Aluminium          |
| R2112.002  | 21,60                    | 10,80                      | Ø3                        | 8              | 1 to 2 | 36                       | 72                     | 18,5           | 5,23                     | 10,62                      | 3              | 13             | Stainless            | Aluminium          |
| R2112.003  | 32,40                    | 10,80                      | Ø3                        | 8              | 1 to 3 | 36                       | 108                    | 24,0           | 5,23                     | 16,07                      | 3              | 13             | Stainless            | Aluminium          |
| R2112.001P |                          | 10,80                      | Ø3                        | 8              | 1 to 1 | 36                       |                        | 13,0           |                          | 5,19                       | 3              | 13             | Stainless            |                    |
| R2112.001G | 10,80                    |                            | Ø3                        | 8              | 1 to 1 |                          | 36                     | 13,0           | 5,19                     |                            | 3              | 13             |                      | Aluminium          |





**R2132**



## Material

Stainless steel (DIN 1,4305).

## Technical Notes

Quality class DIN 7/AGMA 10.  
Right hand.

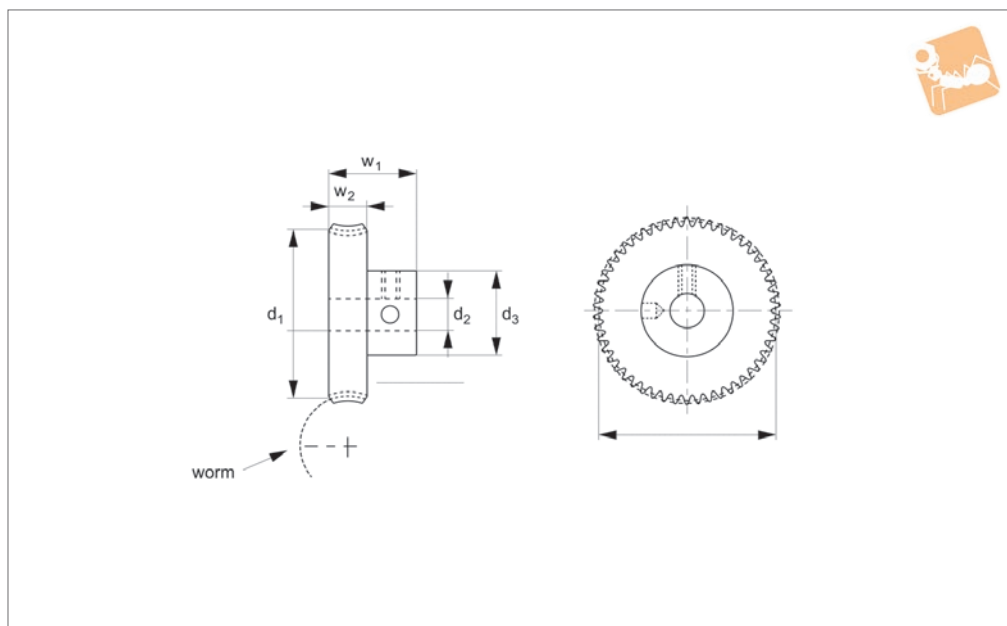
| Order No. | Ø B | Thread | Lead   | Lead angle | Pressure angle |
|-----------|-----|--------|--------|------------|----------------|
| WAS-7S    | 7   | Single | 4.712  | 5° 21'     | 14½°           |
| WAS-7D    | 7   | Double | 9.425  | 10° 37'    | 14½°           |
| WAS-7F    | 7   | Four   | 18.850 | 20° 33'    | 20°            |
| WAS-8S    | 8   | Single | 4.712  | 5° 21'     | 14½°           |
| WAS-8D    | 8   | Double | 9.425  | 10° 37'    | 14½°           |
| WAS-8F    | 8   | Four   | 18.850 | 20° 33'    | 20°            |



# 1,0 Module Precision Worm Gears

## Right Hand

Other Precision  
Gears



**R2134**

OTHER PRECISION GEARS

### Material

Brass.

### Technical Notes

Quality class DIN 7/AGMA 10.

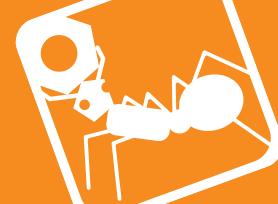
Right hand.

Select worm part R2136 with corresponding number of threads.

### Tips

Ratio=(No. of teeth/No. of worm threads).  
For larger sizes, please see the following page.

| Order No.     | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|---------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| R2134.020-10S | Single | 20           | 10        | 20.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.030-10S | Single | 30           | 10        | 30.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.040-10S | Single | 40           | 10        | 40.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.050-10S | Single | 50           | 10        | 50.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.060-10S | Single | 60           | 10        | 60.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.072-10S | Single | 72           | 10        | 72.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.080-10S | Single | 80           | 10        | 80.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.096-10S | Single | 96           | 10        | 96.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.100-10S | Single | 100          | 10        | 100.00          | 3.142          | 4° 45'      | 14½°           |
| R2134.020-10D | Double | 20           | 10        | 20.00           | 6.283          | 9° 27'      | 20°            |
| R2134.030-10D | Double | 30           | 10        | 30.00           | 6.283          | 9° 27'      | 20°            |
| R2134.040-10D | Double | 40           | 10        | 40.00           | 6.283          | 9° 27'      | 20°            |
| R2134.050-10D | Double | 50           | 10        | 50.00           | 6.283          | 9° 27'      | 20°            |
| R2134.060-10D | Double | 60           | 10        | 60.00           | 6.283          | 9° 27'      | 20°            |
| R2134.072-10D | Double | 72           | 10        | 72.00           | 6.283          | 9° 27'      | 20°            |
| R2134.080-10D | Double | 80           | 10        | 80.00           | 6.283          | 9° 27'      | 20°            |
| R2134.096-10D | Double | 96           | 10        | 96.00           | 6.283          | 9° 27'      | 20°            |
| R2134.100-10D | Double | 100          | 10        | 100.00          | 6.283          | 9° 27'      | 20°            |
| R2134.020-10F | Four   | 20           | 10        | 20.00           | 12.566         | 18° 26'     | 25°            |
| R2134.030-10F | Four   | 30           | 10        | 30.00           | 12.566         | 18° 26'     | 25°            |
| R2134.040-10F | Four   | 40           | 10        | 40.00           | 12.566         | 18° 26'     | 25°            |
| R2134.050-10F | Four   | 50           | 10        | 50.00           | 12.566         | 18° 26'     | 25°            |
| R2134.060-10F | Four   | 60           | 10        | 60.00           | 12.566         | 18° 26'     | 25°            |
| R2134.072-10F | Four   | 72           | 10        | 72.00           | 12.566         | 18° 26'     | 25°            |
| R2134.080-10F | Four   | 80           | 10        | 80.00           | 12.566         | 18° 26'     | 25°            |
| R2134.096-10F | Four   | 96           | 10        | 96.00           | 12.566         | 18° 26'     | 25°            |
| R2134.100-10F | Four   | 100          | 10        | 100.00          | 12.566         | 18° 26'     | 25°            |
| R2134.020-12S | Single | 20           | 12        | 20.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.030-12S | Single | 30           | 12        | 30.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.040-12S | Single | 40           | 12        | 40.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.050-12S | Single | 50           | 12        | 50.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.060-12S | Single | 60           | 12        | 60.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.072-12S | Single | 72           | 12        | 72.00           | 3.142          | 4° 45'      | 14½°           |
| R2134.080-12S | Single | 80           | 12        | 80.00           | 3.142          | 4° 45'      | 14½°           |

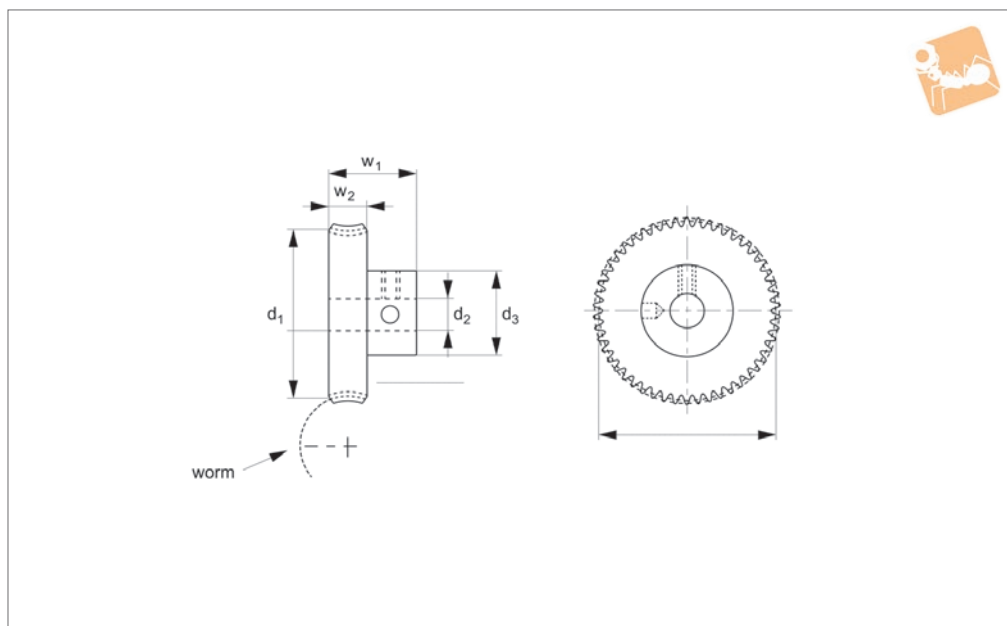


| Order No.            | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|----------------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| <b>R2134.096-12S</b> | Single | 96           | 12        | 96.00           | 3.142          | 4° 45'      | 14½°           |
| <b>R2134.100-12S</b> | Single | 100          | 12        | 100.00          | 3.142          | 4° 45'      | 14½°           |
| <b>R2134.020-12D</b> | Double | 20           | 12        | 20.00           | 6.283          | 9° 27'      | 20°            |
| <b>R2134.030-12D</b> | Double | 30           | 12        | 30.00           | 6.283          | 9° 27'      | 20°            |
| <b>R2134.040-12D</b> | Double | 40           | 12        | 40.00           | 6.283          | 9° 27'      | 20°            |
| <b>R2134.050-12D</b> | Double | 50           | 12        | 50.00           | 6.283          | 9° 27'      | 20°            |
| <b>R2134.060-12D</b> | Double | 60           | 12        | 60.00           | 6.283          | 9° 27'      | 20°            |
| <b>R2134.072-12D</b> | Double | 72           | 12        | 72.00           | 6.283          | 9° 27'      | 20°            |
| <b>R2134.080-12D</b> | Double | 80           | 12        | 80.00           | 6.283          | 9° 27'      | 20°            |
| <b>R2134.096-12D</b> | Double | 96           | 12        | 96.00           | 6.283          | 9° 27'      | 20°            |
| <b>R2134.100-12D</b> | Double | 100          | 12        | 100.00          | 6.283          | 9° 27'      | 20°            |



# 1,0 Module Precision Worm Gears - brass

Other Precision  
Gears



**R2134.1**

OTHER PRECISION GEARS

## Material

Brass.

## Technical Notes

Quality class DIN 7/AGMA 10.

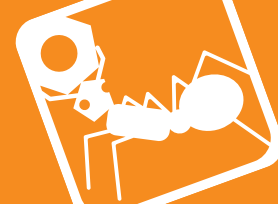
Right hand.

Select worm R2136 with corresponding number of threads.

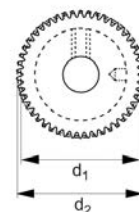
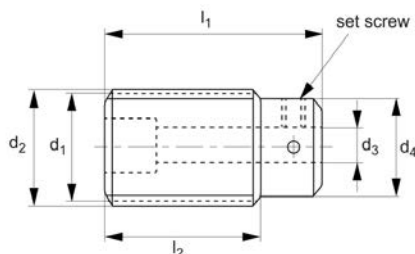
## Tips

Ratio=(No. of teeth/No. of worm threads).  
For smaller sizes, please see the previous page.

| Order No.     | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|---------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| R2134.020-12F | Four   | 20           | 12        | 20.00           | 12.566         | 18° 26'     | 25°            |
| R2134.030-12F | Four   | 30           | 12        | 30.00           | 12.566         | 18° 26'     | 25°            |
| R2134.040-12F | Four   | 40           | 12        | 40.00           | 12.566         | 18° 26'     | 25°            |
| R2134.050-12F | Four   | 50           | 12        | 50.00           | 12.566         | 18° 26'     | 25°            |
| R2134.060-12F | Four   | 60           | 12        | 60.00           | 12.566         | 18° 26'     | 25°            |
| R2134.072-12F | Four   | 72           | 12        | 72.00           | 12.566         | 18° 26'     | 25°            |
| R2134.080-12F | Four   | 80           | 12        | 80.00           | 12.566         | 18° 26'     | 25°            |
| R2134.096-12F | Four   | 96           | 12        | 96.00           | 12.566         | 18° 26'     | 25°            |
| R2134.100-12F | Four   | 100          | 12        | 100.00          | 12.566         | 18° 26'     | 25°            |



## R2136



### Material

Stainless steel (DIN 1,4305).

### Technical Notes

Quality class DIN 7/AGMA 10.  
Right hand.

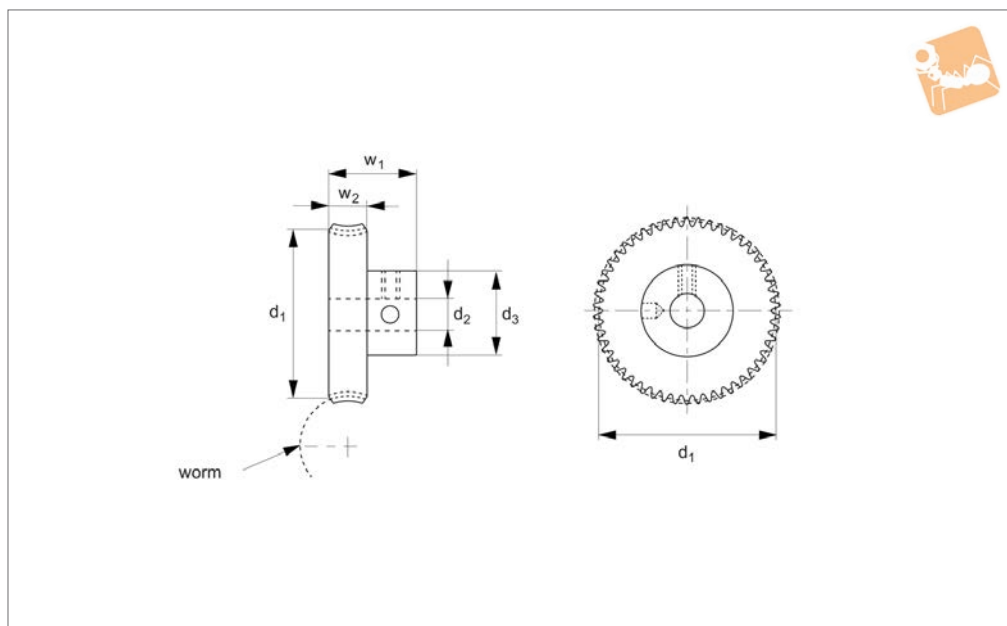
| Order No. | Ø B | Starts | Lead   | Lead angle | Pressure angle |
|-----------|-----|--------|--------|------------|----------------|
| R2136.07S | 7   | Single | 3.142  | 4° 45'     | 14½°           |
| R2136.07D | 7   | Double | 6.283  | 9° 27'     | 20°            |
| R2136.07F | 7   | Four   | 12.566 | 18° 26'    | 25°            |
| R2136.08S | 8   | Single | 3.142  | 4° 45'     | 14½°           |
| R2136.08D | 8   | Double | 6.283  | 9° 27'     | 20°            |
| R2136.08F | 8   | Four   | 12.566 | 18° 26'    | 25°            |



## 0,8 Module Precision Worm Gears

brass

## Other Precision Gears



**R2138**

OTHER PRECISION GEARS

### Material

Brass.

Right hand.

Select worm part R2136 with corresponding number of threads.

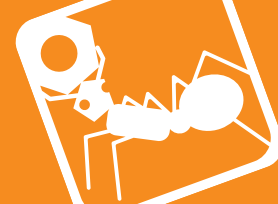
### Tips

Ratio=(No. of teeth/No. of worm threads).

### Technical Notes

Quality class DIN 7/AGMA 10.

| Order No.     | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|---------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| R2138.020S-05 | Single | 20           | 5         | 16.00           | 2.513          | 4° -0'      | 14½°           |
| R2138.030S-05 | Single | 30           | 5         | 24.00           | 2.513          | 4° -0'      | 14½°           |
| R2138.040S-05 | Single | 40           | 5         | 32.00           | 2.513          | 4° -0'      | 14½°           |
| R2138.050S-05 | Single | 50           | 5         | 40.00           | 2.513          | 4° -0'      | 14A°           |
| R2138.060S-05 | Single | 60           | 5         | 48.00           | 2.513          | 4° -0'      | 14A°           |
| R2138.080S-05 | Single | 80           | 5         | 64.00           | 2.513          | 4° -0'      | 14A°           |
| R2138.090S-05 | Single | 90           | 5         | 76.80           | 2.513          | 4° -0'      | 14A°           |
| R2138.100S-05 | Single | 100          | 5         | 80.00           | 2.513          | 4° -0'      | 14A°           |
| R2138.020D-05 | Double | 20           | 5         | 16.00           | 5.027          | 7° -59'     | 20°            |
| R2138.030D-05 | Double | 30           | 5         | 24.00           | 5.027          | 7° -59'     | 20°            |
| R2138.040D-05 | Double | 40           | 5         | 32.00           | 5.027          | 7° -59'     | 20°            |
| R2138.050D-05 | Double | 50           | 5         | 40.00           | 5.027          | 7° -59'     | 20°            |
| R2138.060D-05 | Double | 60           | 5         | 48.00           | 5.027          | 7° -59'     | 20°            |
| R2138.080D-05 | Double | 80           | 5         | 64.00           | 5.027          | 7° -59'     | 20°            |
| R2138.090D-05 | Double | 90           | 5         | 76.80           | 5.027          | 7° -59'     | 20°            |
| R2138.100D-05 | Double | 100          | 5         | 80.00           | 5.027          | 7° -59'     | 20°            |
| R2138.020F-05 | Four   | 20           | 5         | 16.00           | 10.053         | 15° -40'    | 25°            |
| R2138.030F-05 | Four   | 30           | 5         | 24.00           | 10.053         | 15° -40'    | 25°            |
| R2138.040F-05 | Four   | 40           | 5         | 32.00           | 10.053         | 15° -40'    | 25°            |
| R2138.050F-05 | Four   | 50           | 5         | 40.00           | 10.053         | 15° -40'    | 25°            |
| R2138.060F-05 | Four   | 60           | 5         | 48.00           | 10.053         | 15° -40'    | 25°            |
| R2138.080F-05 | Four   | 80           | 5         | 64.00           | 10.053         | 15° -40'    | 25°            |
| R2138.090F-05 | Four   | 90           | 5         | 76.80           | 10.053         | 15° -40'    | 25°            |
| R2138.100F-05 | Four   | 100          | 5         | 80.00           | 10.053         | 15° -40'    | 25°            |
| R2138.020S-08 | Single | 20           | 8         | 16.00           | 2.513          | 4° -0'      | 14½°           |
| R2138.030S-08 | Single | 30           | 8         | 24.00           | 2.513          | 4° -0'      | 14½°           |
| R2138.040S-08 | Single | 40           | 8         | 32.00           | 2.513          | 4° -0'      | 14½°           |
| R2138.050S-08 | Single | 50           | 8         | 40.00           | 2.513          | 4° -0'      | 14A°           |
| R2138.060S-08 | Single | 60           | 8         | 48.00           | 2.513          | 4° -0'      | 14A°           |
| R2138.080S-08 | Single | 80           | 8         | 64.00           | 2.513          | 4° -0'      | 14A°           |
| R2138.090S-08 | Single | 90           | 8         | 76.80           | 2.513          | 4° -0'      | 14A°           |
| R2138.100S-08 | Single | 100          | 8         | 80.00           | 2.513          | 4° -0'      | 14A°           |
| R2138.020D-08 | Double | 20           | 8         | 16.00           | 5.027          | 7° -59'     | 20°            |
| R2138.030D-08 | Double | 30           | 8         | 24.00           | 5.027          | 7° -59'     | 20°            |



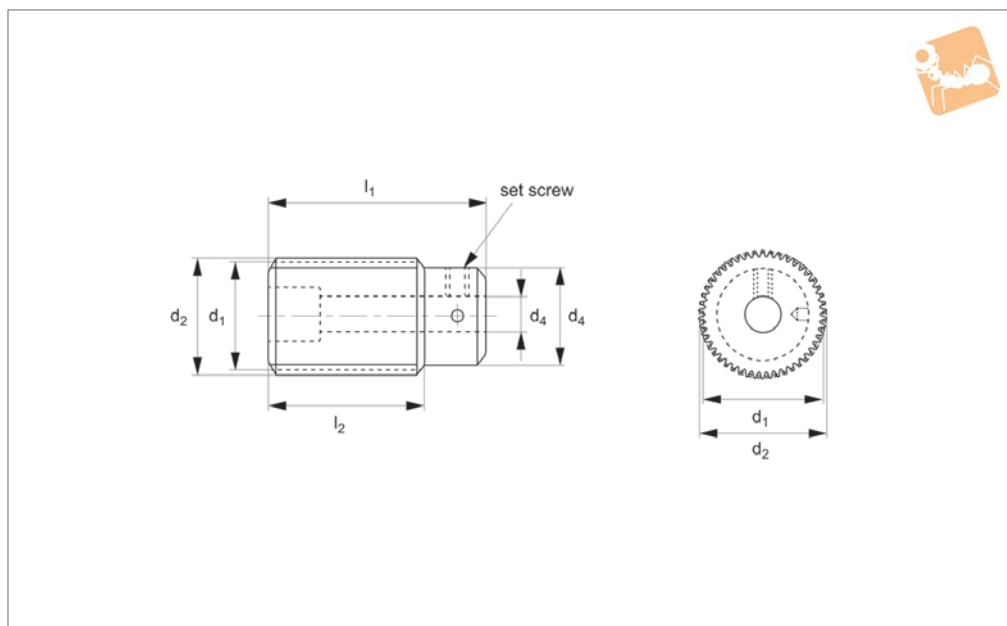
| Order No.            | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|----------------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| <b>R2138.040D-08</b> | Double | 40           | 8         | 32.00           | 5.027          | 7° -59'     | 20°            |
| <b>R2138.050D-08</b> | Double | 50           | 8         | 40.00           | 5.027          | 7° -59'     | 20°            |
| <b>R2138.060D-08</b> | Double | 60           | 8         | 48.00           | 5.027          | 7° -59'     | 20°            |
| <b>R2138.080D-08</b> | Double | 80           | 8         | 64.00           | 5.027          | 7° -59'     | 20°            |
| <b>R2138.090D-08</b> | Double | 90           | 8         | 76.80           | 5.027          | 7° -59'     | 20°            |
| <b>R2138.100D-08</b> | Double | 100          | 8         | 80.00           | 5.027          | 7° -59'     | 20°            |
| <b>R2138.020F-08</b> | Four   | 20           | 8         | 16.00           | 10.053         | 15° -40'    | 25°            |
| <b>R2138.030F-08</b> | Four   | 30           | 8         | 24.00           | 10.053         | 15° -40'    | 25°            |
| <b>R2138.040F-08</b> | Four   | 40           | 8         | 32.00           | 10.053         | 15° -40'    | 25°            |
| <b>R2138.050F-08</b> | Four   | 50           | 8         | 40.00           | 10.053         | 15° -40'    | 25°            |
| <b>R2138.060F-08</b> | Four   | 60           | 8         | 48.00           | 10.053         | 15° -40'    | 25°            |
| <b>R2138.080F-08</b> | Four   | 80           | 8         | 64.00           | 10.053         | 15° -40'    | 25°            |
| <b>R2138.090F-08</b> | Four   | 90           | 8         | 76.80           | 10.053         | 15° -40'    | 25°            |
| <b>R2138.100F-08</b> | Four   | 100          | 8         | 80.00           | 10.053         | 15° -40'    | 25°            |



# 0,8 Module Precision Worms

stainless steel

Other Precision  
Gears



**R2140**

OTHER PRECISION GEARS

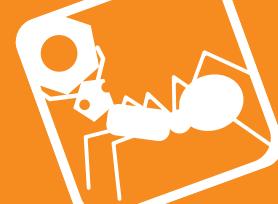
## Material

Stainless steel (DIN 1,4305).

## Technical Notes

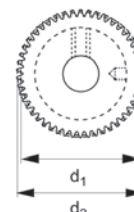
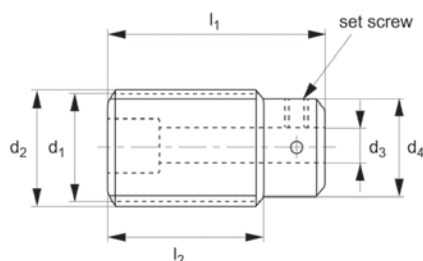
Quality class DIN 7/AGMA 10.  
Right hand.

| Order No. | Starts | Lead   | Lead angle | Pressure angle |
|-----------|--------|--------|------------|----------------|
| R2140.05S | Single | 2.513  | 4° 0'      | 14½°           |
| R2140.05D | Double | 5.027  | 7° 59'     | 20°            |
| R2140.04F | Four   | 10.053 | 15° 40'    | 25°            |



**R2144**

OTHER PRECISION GEARS



#### Material

Stainless steel (DIN 1,4305).

#### Technical Notes

Quality class DIN 7/AGMA 10.  
Right hand.

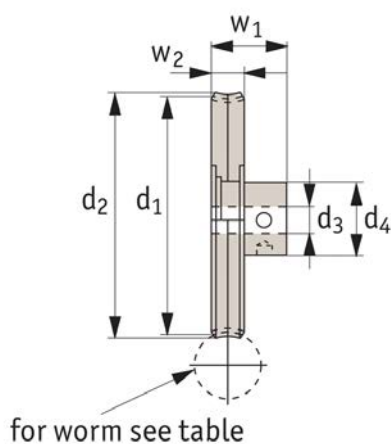
| Order No. | Starts | $l_1$ | $l_2$ | $d_1$ | $d_2$ | $d_3$<br>tol. H7 | $d_4$ | Lead  | Lead angle | Pressure angle |
|-----------|--------|-------|-------|-------|-------|------------------|-------|-------|------------|----------------|
| R2144.3S  | Single | 19    | 14    | 9     | 10    | 3                | 8     | 1.571 | 3° 10'     | 14 1/2°        |
| R2144.3D  | Double | 19    | 14    | 9     | 10    | 3                | 8     | 3.142 | 6° 20'     | 20°            |
| R2144.3F  | Four   | 19    | 14    | 9     | 10    | 3                | 8     | 6.283 | 12° 31'    | 25°            |
| R2144.5S  | Single | 19    | 14    | 9     | 10    | 5                | 8     | 1.571 | 3° 10'     | 14 1/2°        |
| R2144.5D  | Double | 19    | 14    | 9     | 10    | 5                | 8     | 3.142 | 6° 20'     | 20°            |
| R2144.5F  | Four   | 19    | 14    | 9     | 10    | 5                | 8     | 6.283 | 12° 31'    | 25°            |



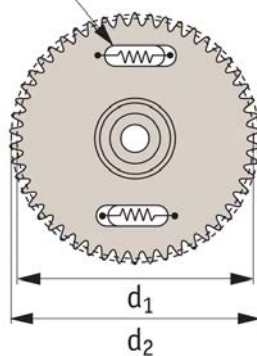
# 0,5 Module Anti-backlash Worm Gears

brass

Other Precision  
Gears



for worm see table



**R2147**

OTHER PRECISION GEARS

## Material

Brass.

## Technical Notes

Quality class DIN 7/AGMA 10.

Right hand.

Select worm with corresponding number of threads - see part no. R2144.

Also available with clamp style hub.

## Tips

Ratio=(No. of teeth/No. of worm threads).  
For larger sizes, please see following page.

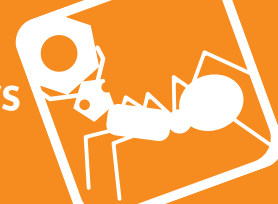
| Order No.     | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|---------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| R2147.040S-05 | Single | 40           | 5         | 20.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.050S-05 | Single | 50           | 5         | 25.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.060S-05 | Single | 60           | 5         | 30.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.070S-05 | Single | 70           | 5         | 35.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.080S-05 | Single | 80           | 5         | 40.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.090S-05 | Single | 90           | 5         | 45.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.100S-05 | Single | 100          | 5         | 50.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.120S-05 | Single | 120          | 5         | 60.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.180S-05 | Single | 180          | 5         | 90.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.040D-05 | Double | 40           | 5         | 20.00           | 3.142          | 6° 20'      | 20°            |
| R2147.050D-05 | Double | 50           | 5         | 25.00           | 3.142          | 6° 20'      | 20°            |
| R2147.060D-05 | Double | 60           | 5         | 30.00           | 3.142          | 6° 20'      | 20°            |
| R2147.120D-05 | Double | 120          | 5         | 60.00           | 3.142          | 6° 20'      | 20°            |
| R2147.070D-05 | Double | 70           | 5         | 35.00           | 3.142          | 6° 20'      | 20°            |
| R2147.080D-05 | Double | 80           | 5         | 40.00           | 3.142          | 6° 20'      | 20°            |
| R2147.090D-05 | Double | 90           | 5         | 45.00           | 3.142          | 6° 20'      | 20°            |
| R2147.100D-05 | Double | 100          | 5         | 50.00           | 3.142          | 6° 20'      | 20°            |
| R2147.180D-05 | Double | 180          | 5         | 90.00           | 3.142          | 6° 20'      | 20°            |
| R2147.040F-05 | Four   | 40           | 5         | 20.00           | 6.283          | 12° 31'     | 25°            |
| R2147.050F-05 | Four   | 50           | 5         | 25.00           | 6.283          | 12° 31'     | 25°            |
| R2147.060F-05 | Four   | 60           | 5         | 30.00           | 6.283          | 12° 31'     | 25°            |
| R2147.070F-05 | Four   | 70           | 5         | 35.00           | 6.283          | 12° 31'     | 25°            |
| R2147.080F-05 | Four   | 80           | 5         | 40.00           | 6.283          | 12° 31'     | 25°            |
| R2147.090F-05 | Four   | 90           | 5         | 45.00           | 6.283          | 12° 31'     | 25°            |
| R2147.100F-05 | Four   | 100          | 5         | 50.00           | 6.283          | 12° 31'     | 25°            |
| R2147.120F-05 | Four   | 120          | 5         | 60.00           | 6.283          | 12° 31'     | 25°            |
| R2147.180F-05 | Four   | 180          | 5         | 90.00           | 6.283          | 12° 31'     | 25°            |
| R2147.040S-08 | Single | 40           | 8         | 20.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.050S-08 | Single | 50           | 8         | 25.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.060S-08 | Single | 60           | 8         | 30.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.070S-08 | Single | 70           | 8         | 35.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.080S-08 | Single | 80           | 8         | 40.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.090S-08 | Single | 90           | 8         | 45.00           | 1.571          | 3° 10'      | 14A°           |
| R2147.100S-08 | Single | 100          | 8         | 50.00           | 1.571          | 3° 10'      | 14A°           |



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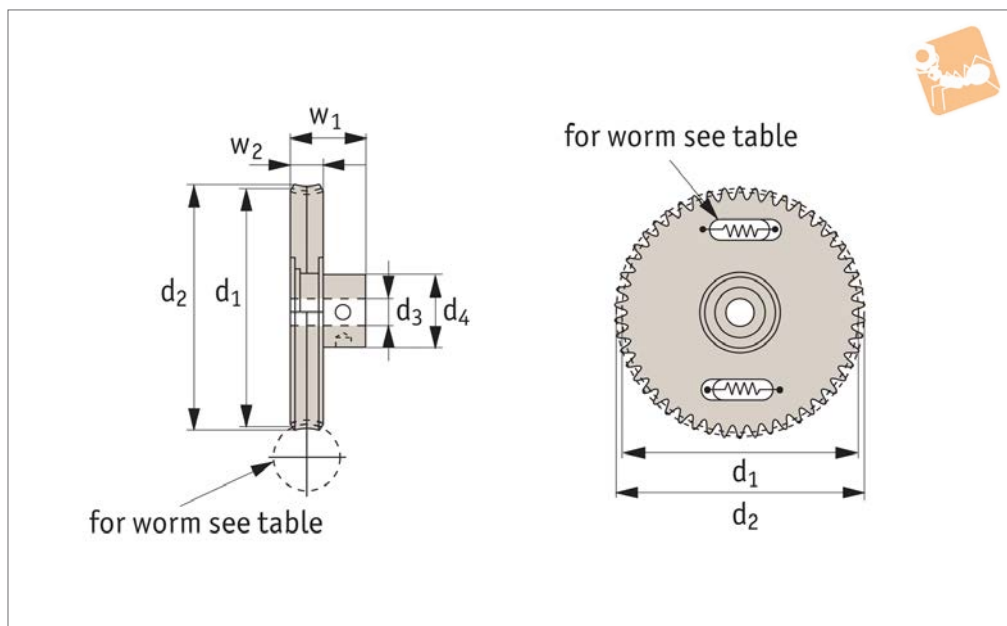
| Order No.            | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|----------------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| <b>R2147.120S-08</b> | Single | 120          | 8         | 60.00           | 1.571          | 3° 10'      | 14A°           |
| <b>R2147.180S-08</b> | Single | 180          | 8         | 90.00           | 1.571          | 3° 10'      | 14A°           |



# 0,5 Module Anti-backlash Worm Gears

brass

Other Precision Gears



**R2147.1**

OTHER PRECISION GEARS

## Material

Brass.

## Technical Notes

Quality class DIN 7/AGMA 10.

Right hand.

Select worm with corresponding number of threads - see part no. R2144.

Also available with clamp style hub.

## Tips

Ratio=(No. of teeth/No. of worm threads).  
For smaller sizes, please see previous page.

| Order No.     | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|---------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| R2147.D040-05 | Double | 40           | 5         | 20.00           | 3.142          | 6° 20'      | 20°            |
| R2147.D050-05 | Double | 50           | 5         | 25.00           | 3.142          | 6° 20'      | 20°            |
| R2147.D060-05 | Double | 60           | 5         | 30.00           | 3.142          | 6° 20'      | 20°            |
| R2147.D070-05 | Double | 70           | 5         | 35.00           | 3.142          | 6° 20'      | 20°            |
| R2147.D080-05 | Double | 80           | 5         | 40.00           | 3.142          | 6° 20'      | 20°            |
| R2147.D090-05 | Double | 90           | 5         | 45.00           | 3.142          | 6° 20'      | 20°            |
| R2147.D100-05 | Double | 100          | 5         | 50.00           | 3.142          | 6° 20'      | 20°            |
| R2147.D120-05 | Double | 120          | 5         | 60.00           | 3.142          | 6° 20'      | 20°            |
| R2147.D180-05 | Double | 180          | 5         | 90.00           | 3.142          | 6° 20'      | 20°            |
| R2147.F040-05 | Four   | 40           | 5         | 20.00           | 6.283          | 12° 31'     | 25°            |
| R2147.F050-05 | Four   | 50           | 5         | 25.00           | 6.283          | 12° 31'     | 25°            |
| R2147.F060-05 | Four   | 60           | 5         | 30.00           | 6.283          | 12° 31'     | 25°            |
| R2147.F070-05 | Four   | 70           | 5         | 35.00           | 6.283          | 12° 31'     | 25°            |
| R2147.F080-05 | Four   | 80           | 5         | 40.00           | 6.283          | 12° 31'     | 25°            |
| R2147.F090-05 | Four   | 90           | 5         | 45.00           | 6.283          | 12° 31'     | 25°            |
| R2147.F100-05 | Four   | 100          | 5         | 50.00           | 6.283          | 12° 31'     | 25°            |
| R2147.F120-05 | Four   | 120          | 5         | 60.00           | 6.283          | 12° 31'     | 25°            |
| R2147.F180-05 | Four   | 180          | 5         | 90.00           | 6.283          | 12° 31'     | 25°            |

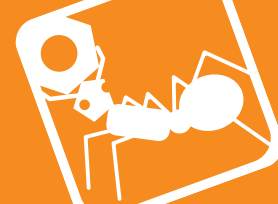


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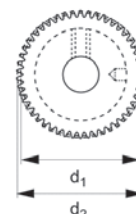
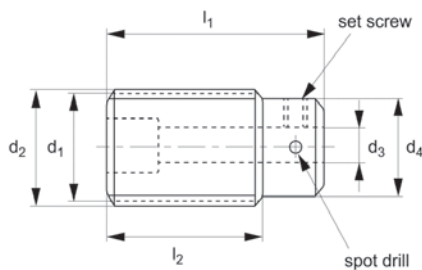
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**R2149**

OTHER PRECISION GEARS



**Material**

Stainless steel (AISI 303, 1,4305).

Right hand.

**Tips**

Ratio = No. of teeth/No. of worm threads.

**Technical Notes**

Quality class DIN 7/AGMA 10.

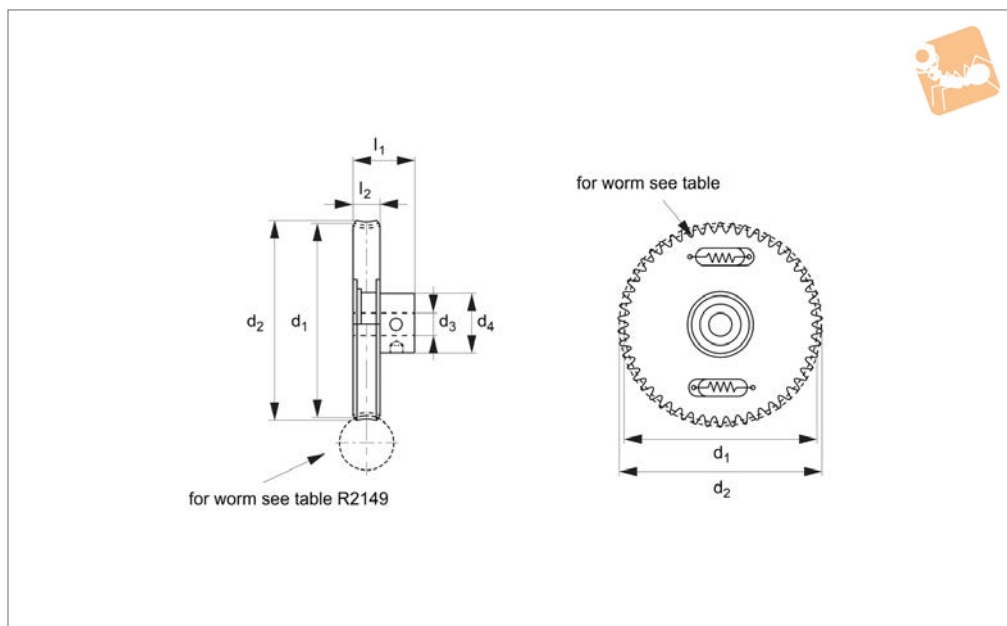
| Order No.        | $l_1$ | $l_2$ | $d_1$ | $d_2$<br>+0.00 -0.11 | $d_3$<br>tol. H7 | $d_4$ | Thread | Lead  | Lead angle | Pressure angle |
|------------------|-------|-------|-------|----------------------|------------------|-------|--------|-------|------------|----------------|
| <b>R2149.S03</b> | 25    | 19    | 13.2  | 14                   | 3                | 8     | single | 1.257 | 1° 44'     | 14-1/2°        |
| <b>R2149.D03</b> | 25    | 19    | 13.2  | 14                   | 3                | 8     | double | 2.513 | 3° 28'     | 14-1/2°        |
| <b>R2149.F03</b> | 25    | 19    | 13.2  | 14                   | 3                | 8     | four   | 5.027 | 6° 54'     | 14-1/2°        |
| <b>R2149.S05</b> | 25    | 19    | 13.2  | 14                   | 5                | 10    | single | 1.257 | 1° 44'     | 14-1/2°        |
| <b>R2149.D05</b> | 25    | 19    | 13.2  | 14                   | 5                | 10    | double | 2.513 | 3° 28'     | 14-1/2°        |
| <b>R2149.F05</b> | 25    | 19    | 13.2  | 14                   | 5                | 10    | four   | 5.027 | 6° 54'     | 14-1/2°        |
| <b>R2149.S07</b> | 25    | 19    | 13.2  | 14                   | 7                | 11    | single | 1.257 | 1° 44'     | 14-1/2°        |
| <b>R2149.D07</b> | 25    | 19    | 13.2  | 14                   | 7                | 11    | double | 2.513 | 3° 28'     | 14-1/2°        |
| <b>R2149.F07</b> | 25    | 19    | 13.2  | 14                   | 7                | 11    | four   | 5.027 | 6° 54'     | 14-1/2°        |



# 0,4 Module Anti-backlash Worm Gears

brass

Other Precision  
Gears



**R2150**

OTHER PRECISION GEARS

## Material

Gears: Brass

Hubs: Stainless steel (DIN 1,4305).

Right hand.

Select worm with corresponding number of threads - see part no. R2144.

Also available with clamp style hub.

## Tips

Ratio=(No. of teeth/No. of worm threads).  
For larger sizes, please see following page.

## Technical Notes

Quality class DIN 7/AGMA 10.

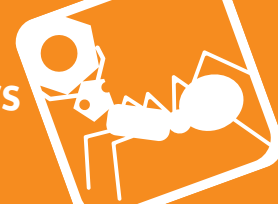
| Order No.     | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|---------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| R2150.S050-05 | Single | 50           | 5         | 20.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S060-05 | Single | 60           | 5         | 24.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S070-05 | Single | 70           | 5         | 28.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S080-05 | Single | 80           | 5         | 32.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S090-05 | Single | 90           | 5         | 36.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.D050-05 | Double | 50           | 5         | 20.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.F050-05 | Four   | 50           | 5         | 20.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.S100-05 | Single | 100          | 5         | 40.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S110-05 | Single | 110          | 5         | 44.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S120-05 | Single | 120          | 5         | 48.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S180-05 | Single | 180          | 5         | 72.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.D060-05 | Double | 60           | 5         | 24.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.D070-05 | Double | 70           | 5         | 28.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.D080-05 | Double | 80           | 5         | 32.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.D090-05 | Double | 90           | 5         | 36.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.D100-05 | Double | 100          | 5         | 40.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.D110-05 | Double | 110          | 5         | 44.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.D120-05 | Double | 120          | 5         | 48.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.D180-05 | Double | 180          | 5         | 72.00           | 2.513          | 3° 28'      | 14 1/2°        |
| R2150.F060-05 | Four   | 60           | 5         | 24.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.F070-05 | Four   | 70           | 5         | 28.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.F080-05 | Four   | 80           | 5         | 32.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.F090-05 | Four   | 90           | 5         | 36.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.F100-05 | Four   | 100          | 5         | 40.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.F110-05 | Four   | 110          | 5         | 44.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.F120-05 | Four   | 120          | 5         | 48.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.F180-05 | Four   | 180          | 5         | 72.00           | 5.027          | 6° 54'      | 14 1/2°        |
| R2150.S050-08 | Single | 50           | 8         | 20.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S060-08 | Single | 60           | 8         | 24.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S070-08 | Single | 70           | 8         | 28.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S080-08 | Single | 80           | 8         | 32.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S090-08 | Single | 90           | 8         | 36.00           | 1.257          | 1° 44'      | 14 1/2°        |
| R2150.S100-08 | Single | 100          | 8         | 40.00           | 1.257          | 1° 44'      | 14 1/2°        |



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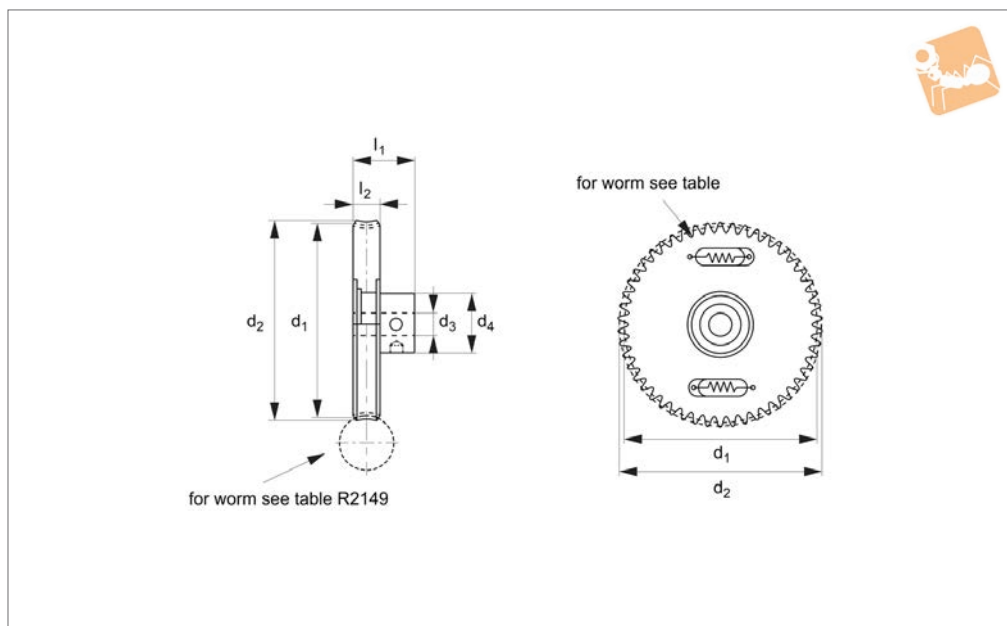
| Order No.            | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|----------------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| <b>R2150.S110-08</b> | Single | 110          | 8         | 44.00           | 1.257          | 1° 44'      | 14 1/2°        |
| <b>R2150.S120-08</b> | Single | 120          | 8         | 48.00           | 1.257          | 1° 44'      | 14 1/2°        |
| <b>R2150.S180-08</b> | Single | 180          | 8         | 72.00           | 1.257          | 1° 44'      | 14 1/2°        |



# 0,4 Module Anti-backlash Worm Gears

brass

Other Precision Gears



**R2150.1**

OTHER PRECISION GEARS

## Material

Gears: Brass

Hubs: Stainless steel (DIN 1,4305).

Right hand.

Select worm with corresponding number of threads - see part no. R2144.

Also available with clamp style hub.

## Tips

Ratio=(No. of teeth/No. of worm threads).  
For smaller sizes, please see previous page.

## Technical Notes

Quality class DIN 7/AGMA 10.

| Order No.            | Starts | No. of teeth | Bore dia. | Pitch dia. P.D. | Circular pitch | Helix angle | Pressure angle |
|----------------------|--------|--------------|-----------|-----------------|----------------|-------------|----------------|
| <b>R2150.D050-08</b> | Double | 50           | 8         | 20.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.D060-08</b> | Double | 60           | 8         | 24.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.D070-08</b> | Double | 70           | 8         | 28.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.D080-08</b> | Double | 80           | 8         | 32.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.D090-08</b> | Double | 90           | 8         | 36.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.D100-08</b> | Double | 100          | 8         | 40.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.D110-08</b> | Double | 110          | 8         | 44.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.D120-08</b> | Double | 120          | 8         | 48.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.D180-08</b> | Double | 180          | 8         | 72.00           | 2.513          | 3° 28'      | 14 1/2°        |
| <b>R2150.F050-08</b> | Four   | 50           | 8         | 20.00           | 5.027          | 6° 54'      | 14 1/2°        |
| <b>R2150.F060-08</b> | Four   | 60           | 8         | 24.00           | 5.027          | 6° 54'      | 14 1/2°        |
| <b>R2150.F070-08</b> | Four   | 70           | 8         | 28.00           | 5.027          | 6° 54'      | 14 1/2°        |
| <b>R2150.F080-08</b> | Four   | 80           | 8         | 32.00           | 5.027          | 6° 54'      | 14 1/2°        |
| <b>R2150.F090-08</b> | Four   | 90           | 8         | 36.00           | 5.027          | 6° 54'      | 14 1/2°        |
| <b>R2150.F100-08</b> | Four   | 100          | 8         | 40.00           | 5.027          | 6° 54'      | 14 1/2°        |
| <b>R2150.F110-08</b> | Four   | 110          | 8         | 44.00           | 5.027          | 6° 54'      | 14 1/2°        |
| <b>R2150.F120-08</b> | Four   | 120          | 8         | 48.00           | 5.027          | 6° 54'      | 14 1/2°        |
| <b>R2150.F180-08</b> | Four   | 180          | 8         | 72.00           | 5.027          | 6° 54'      | 14 1/2°        |

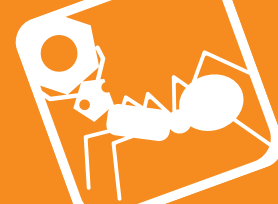


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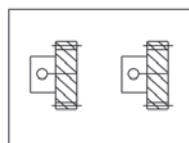
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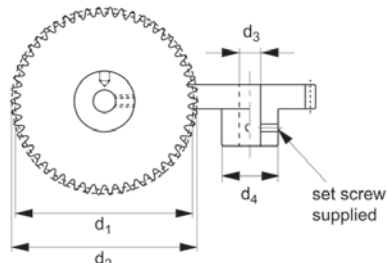
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## R2152



R.H  
helical      L.H  
helical



**Material**  
Stainless steel (DIN 1,4305).

**Technical Notes**  
45° helix angle.

20° pressure angle.  
Quality class DIN 8, AGMA 9.

**Tips**  
For right angle transmission use two gears

with same helical direction.  
For parallel transmission use right and left  
helix.

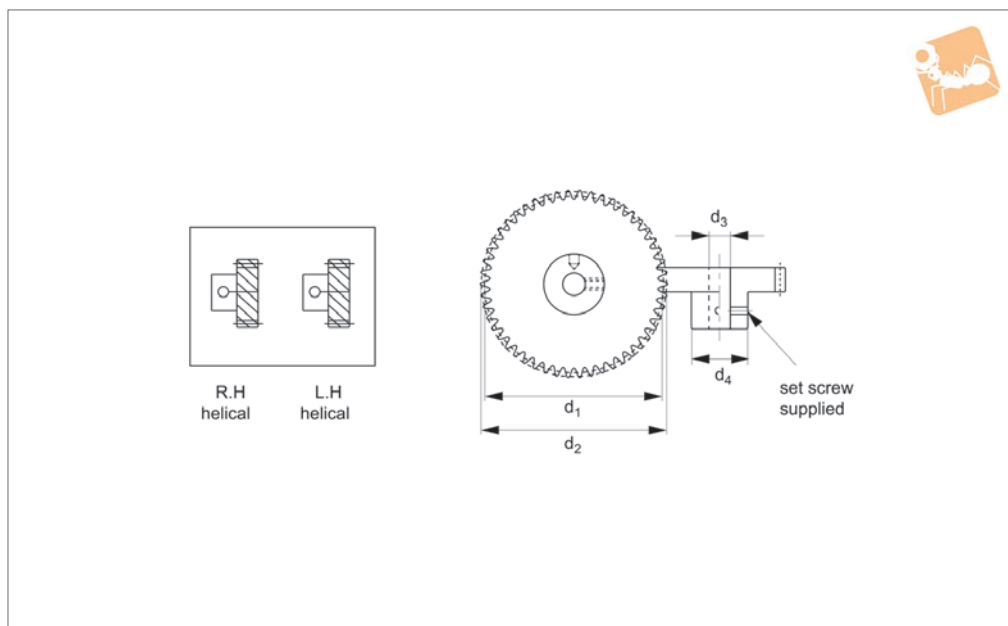
| Order No.  | Hand  | No. of teeth | Pitch dia. P.D. | O.D. dia. |
|------------|-------|--------------|-----------------|-----------|
| R2152.R012 | Right | 12           | 25.46           | 28.46     |
| R2152.R016 | Right | 16           | 33.94           | 36.94     |
| R2152.R020 | Right | 20           | 42.43           | 45.43     |
| R2152.L012 | Left  | 12           | 25.46           | 28.46     |
| R2152.L016 | Left  | 16           | 33.94           | 36.94     |
| R2152.L020 | Left  | 20           | 42.43           | 45.43     |
| R2152.R024 | Right | 24           | 50.91           | 53.91     |
| R2152.L024 | Left  | 24           | 50.91           | 53.91     |
| R2152.R032 | Right | 32           | 67.88           | 70.88     |
| R2152.R040 | Right | 40           | 84.85           | 87.85     |
| R2152.R048 | Right | 48           | 101.82          | 104.82    |
| R2152.L032 | Left  | 32           | 67.88           | 70.88     |
| R2152.L040 | Left  | 40           | 84.85           | 87.85     |
| R2152.L048 | Left  | 48           | 101.82          | 104.82    |



# 1,25 Module Helical Gears

stainless steel, pin hub

Other Precision  
Gears



**R2154**

OTHER PRECISION GEARS

## Material

Stainless steel (DIN 1,4305).

20° pressure angle.

Quality class DIN 8, AGMA 9.

with same helical direction.

For parallel transmission use right and left helix.

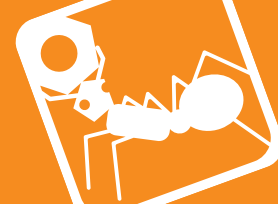
## Technical Notes

45° helix angle.

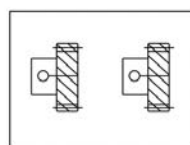
## Tips

For right angle transmission use two gears

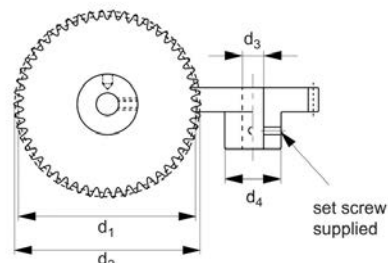
| Order No.  | Hand  | No. of teeth | Pitch dia. P.D. | O.D. dia. |
|------------|-------|--------------|-----------------|-----------|
| R2154.R010 | Right | 10           | 17.68           | 20.18     |
| R2154.R015 | Right | 15           | 26.52           | 29.02     |
| R2154.R020 | Right | 20           | 35.36           | 37.86     |
| R2154.L010 | Left  | 10           | 17.68           | 20.18     |
| R2154.L015 | Left  | 15           | 26.52           | 29.02     |
| R2154.L020 | Left  | 20           | 35.36           | 37.86     |
| R2154.R025 | Right | 25           | 44.19           | 46.69     |
| R2154.L025 | Left  | 25           | 44.19           | 46.69     |
| R2154.R030 | Right | 30           | 53.03           | 55.53     |
| R2154.R040 | Right | 40           | 70.71           | 73.21     |
| R2154.R050 | Right | 50           | 88.39           | 90.89     |
| R2154.R060 | Right | 60           | 106.07          | 108.57    |
| R2154.L030 | Left  | 30           | 53.03           | 55.53     |
| R2154.L040 | Left  | 40           | 70.71           | 73.21     |
| R2154.L050 | Left  | 50           | 88.39           | 90.89     |
| R2154.L060 | Left  | 60           | 106.07          | 108.57    |



## R2156



R.H. helical L.H. helical



### Material

Stainless steel (DIN 1,4305), or aluminium (DIN 3,1355).

20° pressure angle.

Quality class DIN 7, AGMA 10.

transmission use right and left helix.

### Technical Notes

45° helix angle.

### Tips

For right angle transmission use two gears with same helical direction. For parallel

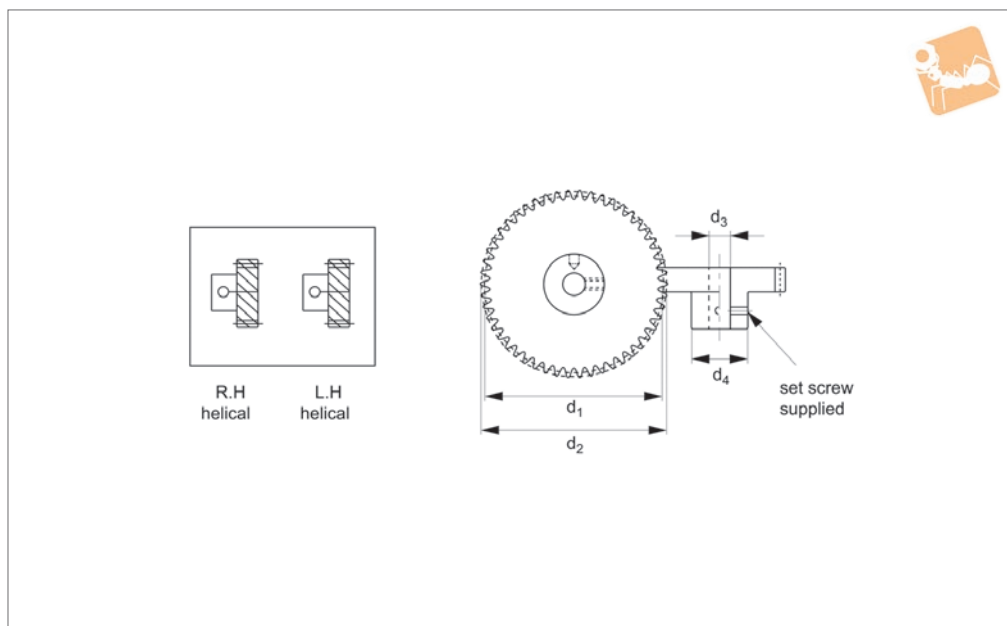
| Order No.  | Hand  | No. of teeth | Material  | Pitch dia. P.D. | O.D. dia. |
|------------|-------|--------------|-----------|-----------------|-----------|
| R2156.R012 | Right | 12           | Stainless | 16.94           | 18.97     |
| R2156.R018 | Right | 18           | Stainless | 25.45           | 27.45     |
| R2156.R024 | Right | 24           | Stainless | 33.94           | 35.94     |
| R2156.R030 | Right | 30           | Stainless | 42.42           | 44.42     |
| R2156.R036 | Right | 36           | Stainless | 50.91           | 52.91     |
| R2156.R048 | Right | 48           | Stainless | 67.88           | 69.88     |
| R2156.R060 | Right | 60           | Stainless | 84.85           | 86.85     |
| R2156.R072 | Right | 72           | Stainless | 101.82          | 103.82    |
| R2156.R512 | Right | 12           | Aluminium | 16.94           | 18.97     |
| R2156.R518 | Right | 18           | Aluminium | 25.45           | 27.45     |
| R2156.R524 | Right | 24           | Aluminium | 33.94           | 35.94     |
| R2156.R530 | Right | 30           | Aluminium | 42.42           | 44.42     |
| R2156.R536 | Right | 36           | Aluminium | 50.91           | 52.91     |
| R2156.R548 | Right | 48           | Aluminium | 67.88           | 69.88     |
| R2156.R560 | Right | 60           | Aluminium | 84.85           | 86.85     |
| R2156.R572 | Right | 72           | Aluminium | 101.82          | 103.82    |
| R2156.L012 | Left  | 12           | Stainless | 16.94           | 18.97     |
| R2156.L018 | Left  | 18           | Stainless | 25.45           | 27.45     |
| R2156.L024 | Left  | 24           | Stainless | 33.94           | 35.94     |
| R2156.L030 | Left  | 30           | Stainless | 42.42           | 44.42     |
| R2156.L036 | Left  | 36           | Stainless | 50.91           | 52.91     |
| R2156.L048 | Left  | 48           | Stainless | 67.88           | 69.88     |
| R2156.L060 | Left  | 60           | Stainless | 84.85           | 86.85     |
| R2156.L072 | Left  | 72           | Stainless | 101.82          | 103.82    |
| R2156.L512 | Left  | 12           | Aluminium | 16.94           | 18.97     |
| R2156.L518 | Left  | 18           | Aluminium | 25.45           | 27.45     |
| R2156.L524 | Left  | 24           | Aluminium | 33.94           | 35.94     |
| R2156.L530 | Left  | 30           | Aluminium | 42.42           | 44.42     |
| R2156.L536 | Left  | 36           | Aluminium | 50.91           | 52.91     |
| R2156.L548 | Left  | 48           | Aluminium | 67.88           | 69.88     |
| R2156.L560 | Left  | 60           | Aluminium | 84.85           | 86.85     |
| R2156.L572 | Left  | 72           | Aluminium | 101.82          | 103.82    |



## 0,8 Module Helical Gears

stainless steel or aluminium, pin hub

Other Precision  
Gears



**R2158**

OTHER PRECISION GEARS

### Material

Stainless steel (DIN 1,4305), or aluminium (DIN 3,1355).

20° pressure angle.  
Quality class DIN 7, AGMA 10.

For parallel transmission use right and left helix.

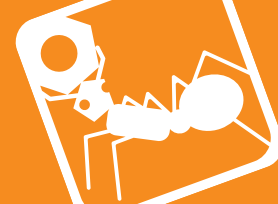
### Technical Notes

45° helix angle.

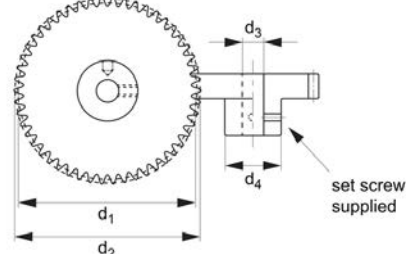
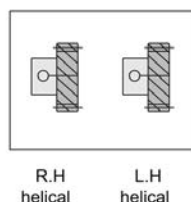
### Tips

For right angle transmission use two gears with same helical direction.

| Order No.  | Hand  | No. of teeth | Material  | Pitch dia. P.D. | O.D. dia. |
|------------|-------|--------------|-----------|-----------------|-----------|
| R2158.R016 | Right | 16           | Stainless | 18.10           | 19.70     |
| R2158.R024 | Right | 24           | Stainless | 27.15           | 28.75     |
| R2158.R032 | Right | 32           | Stainless | 36.20           | 37.80     |
| R2158.R040 | Right | 40           | Stainless | 45.25           | 46.85     |
| R2158.R048 | Right | 48           | Stainless | 54.30           | 55.90     |
| R2158.R064 | Right | 64           | Stainless | 72.40           | 74.00     |
| R2158.R080 | Right | 80           | Stainless | 90.50           | 92.10     |
| R2158.R096 | Right | 96           | Stainless | 108.61          | 110.21    |
| R2158.R516 | Right | 16           | Aluminium | 18.10           | 19.70     |
| R2158.R524 | Right | 24           | Aluminium | 27.15           | 28.75     |
| R2158.R532 | Right | 32           | Aluminium | 36.20           | 37.80     |
| R2158.R540 | Right | 40           | Aluminium | 45.25           | 46.85     |
| R2158.R548 | Right | 48           | Aluminium | 54.30           | 55.90     |
| R2158.R564 | Right | 64           | Aluminium | 72.40           | 74.00     |
| R2158.R580 | Right | 80           | Aluminium | 90.50           | 92.10     |
| R2158.R596 | Right | 96           | Aluminium | 108.61          | 110.21    |
| R2158.L016 | Left  | 16           | Stainless | 18.10           | 19.70     |
| R2158.L024 | Left  | 24           | Stainless | 27.15           | 28.75     |
| R2158.L032 | Left  | 32           | Stainless | 36.20           | 37.80     |
| R2158.L040 | Left  | 40           | Stainless | 45.25           | 46.85     |
| R2158.L048 | Left  | 48           | Stainless | 54.30           | 55.90     |
| R2158.L516 | Left  | 16           | Aluminium | 18.10           | 19.70     |
| R2158.L064 | Left  | 64           | Stainless | 72.40           | 74.00     |
| R2158.L080 | Left  | 80           | Stainless | 90.50           | 92.10     |
| R2158.L096 | Left  | 96           | Stainless | 108.61          | 110.21    |
| R2158.L524 | Left  | 24           | Aluminium | 27.15           | 28.75     |
| R2158.L532 | Left  | 32           | Aluminium | 36.20           | 37.80     |
| R2158.L540 | Left  | 40           | Aluminium | 45.25           | 46.85     |
| R2158.L548 | Left  | 48           | Aluminium | 54.30           | 55.90     |
| R2158.L564 | Left  | 64           | Aluminium | 72.40           | 74.00     |
| R2158.L580 | Left  | 80           | Aluminium | 90.50           | 92.10     |
| R2158.L596 | Left  | 96           | Aluminium | 108.61          | 110.21    |



## R2160



### Material

Stainless steel (DIN 1,4305).

### Technical Notes

45° helix angle.  
20° pressure angle.

Quality class DIN 7, AGMA 10.

### Tips

For right angle transmission use two gears with same helical direction. For parallel transmission use right and left helix.

### Important Notes

For 0,5 module left hand helical gears see R2161.

| Order No.     | Hand  | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|---------------|-------|--------------|-----------|-----------|-----------------|--------------|
| R2160.R020-05 | Right | 20           | Stainless | 5         | 14.14           | 15.14        |
| R2160.R024-05 | Right | 24           | Stainless | 5         | 16.97           | 17.97        |
| R2160.R025-05 | Right | 25           | Stainless | 5         | 17.68           | 18.68        |
| R2160.R030-05 | Right | 30           | Stainless | 5         | 21.21           | 22.21        |
| R2160.R035-05 | Right | 35           | Stainless | 5         | 24.75           | 25.75        |
| R2160.R036-05 | Right | 36           | Stainless | 5         | 25.46           | 26.46        |
| R2160.R040-05 | Right | 40           | Stainless | 5         | 28.28           | 29.28        |
| R2160.R045-05 | Right | 45           | Stainless | 5         | 31.82           | 32.82        |
| R2160.R048-05 | Right | 48           | Stainless | 5         | 33.94           | 34.94        |
| R2160.R050-05 | Right | 50           | Stainless | 5         | 35.36           | 36.36        |
| R2160.R060-05 | Right | 60           | Stainless | 5         | 42.43           | 43.43        |
| R2160.R070-05 | Right | 70           | Stainless | 5         | 49.50           | 50.50        |
| R2160.R072-05 | Right | 72           | Stainless | 5         | 50.91           | 51.91        |
| R2160.R080-05 | Right | 80           | Stainless | 5         | 56.57           | 57.57        |
| R2160.R090-05 | Right | 90           | Stainless | 5         | 63.64           | 64.64        |
| R2160.R096-05 | Right | 96           | Stainless | 5         | 67.88           | 68.88        |
| R2160.R100-05 | Right | 100          | Stainless | 5         | 70.71           | 71.71        |
| R2160.R120-05 | Right | 120          | Stainless | 5         | 84.85           | 85.85        |
| R2160.R144-05 | Right | 144          | Stainless | 5         | 101.82          | 102.82       |
| R2160.R020-08 | Right | 20           | Stainless | 8         | 14.14           | 15.14        |
| R2160.R024-08 | Right | 24           | Stainless | 8         | 16.97           | 17.97        |
| R2160.R025-08 | Right | 25           | Stainless | 8         | 17.68           | 18.68        |
| R2160.R030-08 | Right | 30           | Stainless | 8         | 21.21           | 22.21        |
| R2160.R035-08 | Right | 35           | Stainless | 8         | 24.75           | 25.27        |
| R2160.R036-08 | Right | 36           | Stainless | 8         | 25.46           | 26.46        |
| R2160.R040-08 | Right | 40           | Stainless | 8         | 28.28           | 29.28        |
| R2160.R045-08 | Right | 45           | Stainless | 8         | 31.82           | 32.82        |
| R2160.R048-08 | Right | 48           | Stainless | 8         | 33.94           | 34.94        |
| R2160.R050-08 | Right | 50           | Stainless | 8         | 35.36           | 36.36        |
| R2160.R060-08 | Right | 60           | Stainless | 8         | 42.43           | 43.43        |
| R2160.R070-08 | Right | 70           | Stainless | 8         | 49.50           | 50.50        |
| R2160.R072-08 | Right | 72           | Stainless | 8         | 50.91           | 51.91        |
| R2160.R080-08 | Right | 80           | Stainless | 8         | 56.57           | 57.57        |



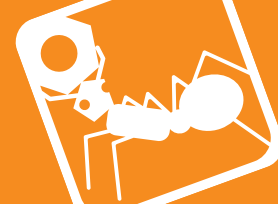
## 0,5 Module Right Hand Helical Gears

stainless steel pin hub

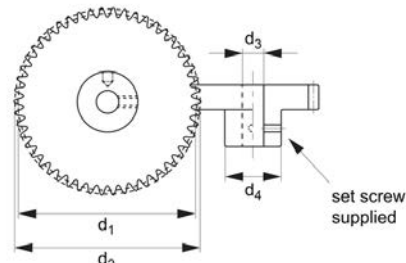
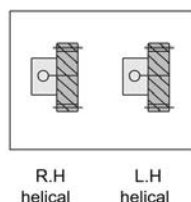
Other Precision  
Gears

| Order No.            | Hand  | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|----------------------|-------|--------------|-----------|-----------|-----------------|--------------|
| <b>R2160.R090-08</b> | Right | 90           | Stainless | 8         | 63.64           | 64.64        |
| <b>R2160.R096-08</b> | Right | 96           | Stainless | 8         | 67.88           | 68.88        |
| <b>R2160.R100-08</b> | Right | 100          | Stainless | 8         | 70.71           | 71.71        |
| <b>R2160.R120-08</b> | Right | 120          | Stainless | 8         | 84.85           | 85.85        |
| <b>R2160.R144-08</b> | Right | 144          | Stainless | 8         | 101.82          | 102.82       |

OTHER PRECISION GEARS



## R2160.1



### Material

Aluminium (DIN 3,1355).

### Technical Notes

45° helix angle.  
20° pressure angle.

Quality class DIN 7, AGMA 10.

### Tips

For right angle transmission use two gears with same helical direction. For parallel transmission use right and left helix.

### Important Notes

For 0,5 module left hand helical gears see R2161.

| Order No.     | Hand  | No. of teeth | Material | Bore dia. | Outside | Pitch  |
|---------------|-------|--------------|----------|-----------|---------|--------|
| R2160.R520-05 | Right | 20           | 5        | Aluminium | 15.14   | 14.14  |
| R2160.R524-05 | Right | 24           | 5        | Aluminium | 17.97   | 16.97  |
| R2160.R525-05 | Right | 25           | 5        | Aluminium | 18.68   | 17.68  |
| R2160.R530-05 | Right | 30           | 5        | Aluminium | 22.21   | 21.21  |
| R2160.R535-05 | Right | 35           | 5        | Aluminium | 25.75   | 24.75  |
| R2160.R536-05 | Right | 36           | 5        | Aluminium | 26.46   | 25.46  |
| R2160.R540-05 | Right | 40           | 5        | Aluminium | 29.28   | 28.28  |
| R2160.R545-05 | Right | 45           | 5        | Aluminium | 32.82   | 31.82  |
| R2160.R548-05 | Right | 48           | 5        | Aluminium | 34.94   | 33.94  |
| R2160.R550-05 | Right | 50           | 5        | Aluminium | 36.36   | 35.36  |
| R2160.R560-05 | Right | 60           | 5        | Aluminium | 43.43   | 42.43  |
| R2160.R570-05 | Right | 70           | 5        | Aluminium | 50.50   | 49.50  |
| R2160.R572-05 | Right | 72           | 5        | Aluminium | 51.91   | 50.91  |
| R2160.R580-05 | Right | 80           | 5        | Aluminium | 57.57   | 56.57  |
| R2160.R590-05 | Right | 90           | 5        | Aluminium | 64.64   | 63.64  |
| R2160.R596-05 | Right | 96           | 5        | Aluminium | 68.88   | 67.88  |
| R2160.R600-05 | Right | 100          | 5        | Aluminium | 71.71   | 70.71  |
| R2160.R620-05 | Right | 120          | 5        | Aluminium | 85.85   | 84.85  |
| R2160.R644-05 | Right | 144          | 5        | Aluminium | 102.82  | 101.82 |
| R2160.R520-08 | Right | 20           | 8        | Aluminium | 15.14   | 14.14  |
| R2160.R524-08 | Right | 24           | 8        | Aluminium | 17.97   | 16.97  |
| R2160.R525-08 | Right | 25           | 8        | Aluminium | 18.68   | 17.68  |
| R2160.R530-08 | Right | 30           | 8        | Aluminium | 22.21   | 21.21  |
| R2160.R535-08 | Right | 35           | 8        | Aluminium | 25.27   | 24.75  |
| R2160.R536-08 | Right | 36           | 8        | Aluminium | 26.46   | 25.46  |
| R2160.R540-08 | Right | 40           | 8        | Aluminium | 29.28   | 28.28  |
| R2160.R545-08 | Right | 45           | 8        | Aluminium | 32.82   | 31.82  |
| R2160.R548-08 | Right | 48           | 8        | Aluminium | 34.94   | 33.94  |
| R2160.R550-08 | Right | 50           | 8        | Aluminium | 36.36   | 35.36  |
| R2160.R560-08 | Right | 60           | 8        | Aluminium | 43.43   | 42.43  |
| R2160.R570-08 | Right | 70           | 8        | Aluminium | 50.50   | 49.50  |
| R2160.R572-08 | Right | 72           | 8        | Aluminium | 51.91   | 50.91  |
| R2160.R580-08 | Right | 80           | 8        | Aluminium | 57.57   | 56.57  |

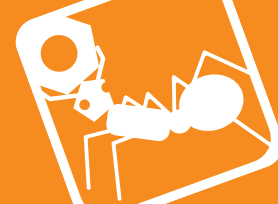


## 0,5 Module Right Hand Helical Gears aluminium pin hub

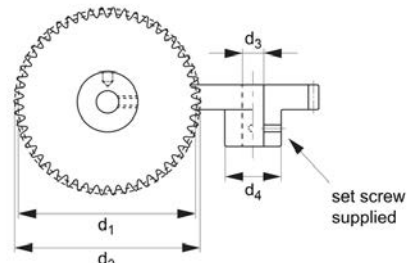
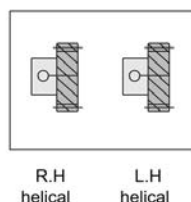
Other Precision  
Gears

| Order No.     | Hand  | No. of teeth | Material | Bore dia. | Outside | Pitch  |
|---------------|-------|--------------|----------|-----------|---------|--------|
| R2160.R590-08 | Right | 90           | 8        | Aluminium | 64.64   | 63.64  |
| R2160.R596-08 | Right | 96           | 8        | Aluminium | 68.88   | 67.88  |
| R2160.R600-08 | Right | 100          | 8        | Aluminium | 71.71   | 70.71  |
| R2160.R620-08 | Right | 120          | 8        | Aluminium | 85.85   | 84.85  |
| R2160.R644-08 | Right | 144          | 8        | Aluminium | 102.82  | 101.82 |

OTHER PRECISION GEARS



## R2161



### Material

Stainless steel (DIN 1,4305).

### Technical Notes

45° helix angle.  
20° pressure angle.

Quality class DIN 7, AGMA 10.

### Tips

For right angle transmission use two gears with same helical direction.  
For parallel transmission use right and left

helix..

### Important Notes

For 0,5 module right hand helical gears see R2160.

| Order No.     | Hand | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|---------------|------|--------------|-----------|-----------|-----------------|--------------|
| R2161.L020-05 | Left | 20           | Stainless | 5         | 14.14           | 15.14        |
| R2161.L024-05 | Left | 24           | Stainless | 5         | 16.97           | 16.97        |
| R2161.L025-05 | Left | 25           | Stainless | 5         | 17.68           | 17.68        |
| R2161.L020-08 | Left | 20           | Stainless | 8         | 14.14           | 15.14        |
| R2161.L024-08 | Left | 24           | Stainless | 8         | 16.97           | 17.97        |
| R2161.L025-08 | Left | 25           | Stainless | 8         | 17.68           | 18.68        |
| R2161.L030-08 | Left | 30           | Stainless | 8         | 21.21           | 22.21        |
| R2161.L030-05 | Left | 30           | Stainless | 5         | 21.21           | 21.21        |
| R2161.L035-05 | Left | 35           | Stainless | 5         | 24.75           | 25.75        |
| R2161.L036-05 | Left | 36           | Stainless | 5         | 25.46           | 26.46        |
| R2161.L040-05 | Left | 40           | Stainless | 5         | 28.28           | 29.28        |
| R2161.L045-05 | Left | 45           | Stainless | 5         | 31.82           | 32.82        |
| R2161.L035-08 | Left | 35           | Stainless | 8         | 24.75           | 25.75        |
| R2161.L036-08 | Left | 36           | Stainless | 8         | 25.46           | 26.46        |
| R2161.L040-08 | Left | 40           | Stainless | 8         | 28.28           | 29.28        |
| R2161.L045-08 | Left | 45           | Stainless | 8         | 31.82           | 32.82        |
| R2161.L048-08 | Left | 48           | Stainless | 8         | 33.94           | 34.94        |
| R2161.L048-05 | Left | 48           | Stainless | 5         | 33.94           | 34.94        |
| R2161.L050-05 | Left | 50           | Stainless | 5         | 35.36           | 36.36        |
| R2161.L060-05 | Left | 60           | Stainless | 5         | 42.43           | 43.43        |
| R2161.L070-05 | Left | 70           | Stainless | 5         | 49.50           | 50.50        |
| R2161.L072-05 | Left | 72           | Stainless | 5         | 50.91           | 51.91        |
| R2161.L050-08 | Left | 50           | Stainless | 8         | 35.36           | 36.36        |
| R2161.L060-08 | Left | 60           | Stainless | 8         | 42.43           | 43.43        |
| R2161.L070-08 | Left | 70           | Stainless | 8         | 49.50           | 50.50        |
| R2161.L072-08 | Left | 72           | Stainless | 8         | 50.91           | 51.91        |
| R2161.L080-08 | Left | 80           | Stainless | 8         | 56.57           | 57.57        |
| R2161.L080-05 | Left | 80           | Stainless | 5         | 56.57           | 57.57        |
| R2161.L090-05 | Left | 90           | Stainless | 5         | 63.64           | 64.64        |
| R2161.L096-05 | Left | 96           | Stainless | 5         | 67.88           | 68.88        |
| R2161.L100-05 | Left | 100          | Stainless | 5         | 70.71           | 71.71        |
| R2161.L120-05 | Left | 120          | Stainless | 5         | 84.85           | 85.85        |
| R2161.L090-08 | Left | 90           | Stainless | 8         | 63.64           | 64.64        |



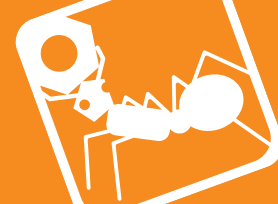
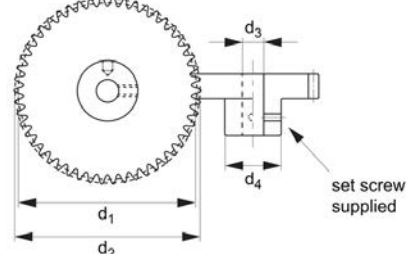
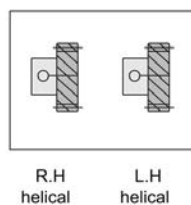
## 0,5 Module Left Hand Helical Gears

stainless steel, pin hub

Other Precision  
Gears

| Order No.     | Hand | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|---------------|------|--------------|-----------|-----------|-----------------|--------------|
| R2161.L096-08 | Left | 96           | Stainless | 8         | 67.88           | 68.88        |
| R2161.L100-08 | Left | 100          | Stainless | 8         | 70.71           | 71.71        |
| R2161.L120-08 | Left | 120          | Stainless | 8         | 84.85           | 85.85        |
| R2161.L144-08 | Left | 144          | Stainless | 8         | 101.82          | 102.82       |
| R2161.L144-05 | Left | 144          | Stainless | 5         | 101.82          | 102.82       |

OTHER PRECISION GEARS

**R2161.1****Material**

Aluminium (DIN 3,1355).

Quality class DIN 7, AGMA 10.

helix.

**Technical Notes**

45° helix angle.

20° pressure angle.

**Tips**

For right angle transmission use two gears with same helical direction.

For parallel transmission use right and left

**Important Notes**

For 0,5 module right hand helical gears see R2160.

| Order No.     | Hand | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|---------------|------|--------------|-----------|-----------|-----------------|--------------|
| R2161.L520-05 | Left | 20           | Aluminium | 5         | 14.14           | 15.14        |
| R2161.L524-05 | Left | 24           | Aluminium | 5         | 16.97           | 16.97        |
| R2161.L525-05 | Left | 25           | Aluminium | 5         | 17.68           | 17.68        |
| R2161.L530-05 | Left | 30           | Aluminium | 5         | 21.21           | 21.21        |
| R2161.L535-05 | Left | 35           | Aluminium | 5         | 24.75           | 25.75        |
| R2161.L536-05 | Left | 36           | Aluminium | 5         | 25.46           | 26.46        |
| R2161.L540-05 | Left | 40           | Aluminium | 5         | 28.28           | 29.28        |
| R2161.L545-05 | Left | 45           | Aluminium | 5         | 31.82           | 32.82        |
| R2161.L548-05 | Left | 48           | Aluminium | 5         | 33.94           | 34.94        |
| R2161.L550-05 | Left | 50           | Aluminium | 5         | 35.36           | 36.36        |
| R2161.L560-05 | Left | 60           | Aluminium | 5         | 42.43           | 43.43        |
| R2161.L570-05 | Left | 70           | Aluminium | 5         | 49.50           | 50.50        |
| R2161.L572-05 | Left | 72           | Aluminium | 5         | 50.91           | 51.91        |
| R2161.L580-05 | Left | 80           | Aluminium | 5         | 56.57           | 57.57        |
| R2161.L590-05 | Left | 90           | Aluminium | 5         | 63.64           | 64.64        |
| R2161.L596-05 | Left | 96           | Aluminium | 5         | 67.88           | 68.88        |
| R2161.L600-05 | Left | 100          | Aluminium | 5         | 70.71           | 71.71        |
| R2161.L620-05 | Left | 120          | Aluminium | 5         | 84.85           | 85.85        |
| R2161.L644-05 | Left | 144          | Aluminium | 5         | 101.82          | 102.82       |
| R2161.L520-08 | Left | 20           | Aluminium | 8         | 14.14           | 15.14        |
| R2161.L524-08 | Left | 24           | Aluminium | 8         | 16.97           | 17.97        |
| R2161.L525-08 | Left | 25           | Aluminium | 8         | 17.68           | 18.68        |
| R2161.L530-08 | Left | 30           | Aluminium | 8         | 21.21           | 22.21        |
| R2161.L535-08 | Left | 35           | Aluminium | 8         | 24.75           | 25.75        |
| R2161.L536-08 | Left | 36           | Aluminium | 8         | 25.46           | 26.46        |
| R2161.L540-08 | Left | 40           | Aluminium | 8         | 28.28           | 29.28        |
| R2161.L545-08 | Left | 45           | Aluminium | 8         | 31.82           | 32.82        |
| R2161.L548-08 | Left | 48           | Aluminium | 8         | 33.94           | 34.94        |
| R2161.L550-08 | Left | 50           | Aluminium | 8         | 35.36           | 36.36        |
| R2161.L560-08 | Left | 60           | Aluminium | 8         | 42.43           | 43.43        |
| R2161.L570-08 | Left | 70           | Aluminium | 8         | 49.50           | 50.50        |
| R2161.L572-08 | Left | 72           | Aluminium | 8         | 50.91           | 51.91        |
| R2161.L580-08 | Left | 80           | Aluminium | 8         | 56.57           | 57.57        |

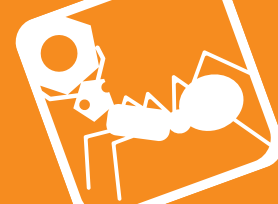


## 0,5 Module Left Hand Helical Gears

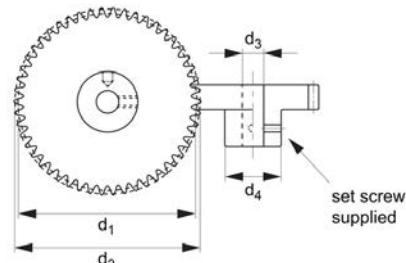
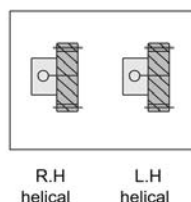
aluminium, pin hub

Other Precision  
Gears

| Order No.     | Hand | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|---------------|------|--------------|-----------|-----------|-----------------|--------------|
| R2161.L590-08 | Left | 90           | Aluminium | 8         | 63.64           | 64.64        |
| R2161.L596-08 | Left | 96           | Aluminium | 8         | 67.88           | 68.88        |
| R2161.L600-08 | Left | 100          | Aluminium | 8         | 70.71           | 71.71        |
| R2161.L620-08 | Left | 120          | Aluminium | 8         | 84.85           | 85.85        |
| R2161.L644-08 | Left | 144          | Aluminium | 8         | 101.82          | 102.82       |



## R2162



### Material

Stainless steel (DIN 1,4305).

### Technical Notes

45° helix angle.  
20° pressure angle.

Quality class DIN 7, AGMA 10.

### Tips

For right angle transmission use two gears with same helical direction.  
For parallel transmission use right and left

helix.

### Important Notes

For 0,4 module left hand helical gears see R2163.

| Order No.     | Hand  | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|---------------|-------|--------------|-----------|-----------|-----------------|--------------|
| R2162.R020-03 | Right | 20           | Stainless | 3         | 11.31           | 12.11        |
| R2162.R025-03 | Right | 25           | Stainless | 3         | 14.14           | 14.94        |
| R2162.R030-03 | Right | 30           | Stainless | 3         | 16.97           | 17.77        |
| R2162.R032-03 | Right | 32           | Stainless | 3         | 18.10           | 18.90        |
| R2162.R035-03 | Right | 35           | Stainless | 3         | 19.80           | 20.60        |
| R2162.R040-03 | Right | 40           | Stainless | 3         | 22.63           | 23.43        |
| R2162.R045-03 | Right | 45           | Stainless | 3         | 24.46           | 25.26        |
| R2162.R048-03 | Right | 48           | Stainless | 3         | 27.15           | 27.95        |
| R2162.R050-03 | Right | 50           | Stainless | 3         | 28.28           | 29.08        |
| R2162.R060-03 | Right | 60           | Stainless | 3         | 33.94           | 34.74        |
| R2162.R064-03 | Right | 64           | Stainless | 3         | 36.20           | 37.00        |
| R2162.R070-03 | Right | 70           | Stainless | 3         | 39.60           | 40.40        |
| R2162.R080-03 | Right | 80           | Stainless | 3         | 45.25           | 46.05        |
| R2162.R090-03 | Right | 90           | Stainless | 3         | 50.91           | 51.71        |
| R2162.R096-03 | Right | 96           | Stainless | 3         | 54.31           | 55.11        |
| R2162.R100-03 | Right | 100          | Stainless | 3         | 56.57           | 57.37        |
| R2162.R128-03 | Right | 128          | Stainless | 3         | 72.41           | 73.21        |
| R2162.R160-03 | Right | 160          | Stainless | 3         | 90.51           | 91.31        |
| R2162.R020-05 | Right | 20           | Stainless | 5         | 11.31           | 12.11        |
| R2162.R025-05 | Right | 25           | Stainless | 5         | 14.14           | 14.94        |
| R2162.R030-05 | Right | 30           | Stainless | 5         | 16.97           | 17.77        |
| R2162.R032-05 | Right | 32           | Stainless | 5         | 18.10           | 18.90        |
| R2162.R035-05 | Right | 35           | Stainless | 5         | 19.80           | 20.60        |
| R2162.R040-05 | Right | 40           | Stainless | 5         | 22.63           | 23.43        |
| R2162.R045-05 | Right | 45           | Stainless | 5         | 24.46           | 25.26        |
| R2162.R048-05 | Right | 48           | Stainless | 5         | 27.15           | 27.95        |
| R2162.R050-05 | Right | 50           | Stainless | 5         | 28.28           | 29.08        |
| R2162.R060-05 | Right | 60           | Stainless | 5         | 33.94           | 34.74        |
| R2162.R064-05 | Right | 64           | Stainless | 5         | 36.20           | 37.00        |
| R2162.R070-05 | Right | 70           | Stainless | 5         | 39.60           | 40.40        |
| R2162.R080-05 | Right | 80           | Stainless | 5         | 42.25           | 46.05        |
| R2162.R090-05 | Right | 90           | Stainless | 5         | 50.91           | 51.71        |
| R2162.R096-05 | Right | 96           | Stainless | 5         | 54.31           | 55.11        |

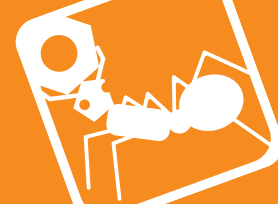


## 0,4 Module Right Hand Helical Gears

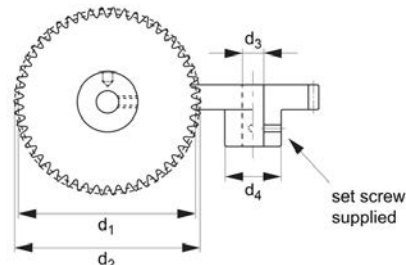
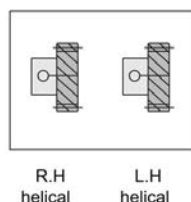
stainless steel, pin hub

Other Precision  
Gears

| Order No.     | Hand  | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|---------------|-------|--------------|-----------|-----------|-----------------|--------------|
| R2162.R100-05 | Right | 100          | Stainless | 5         | 56.57           | 57.37        |
| R2162.R128-05 | Right | 128          | Stainless | 5         | 72.41           | 73.21        |
| R2162.R160-05 | Right | 160          | Stainless | 5         | 90.51           | 91.31        |



## R2162.1



### Material

Aluminium (DIN 3,1355).

### Technical Notes

45° helix angle.  
20° pressure angle.

Quality class DIN 7, AGMA 10.

### Tips

For right angle transmission use two gears with same helical direction.  
For parallel transmission use right and left

helix.

### Important Notes

For 0,4 module left hand helical gears see R2163.

| Order No.     | Hand  | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|---------------|-------|--------------|-----------|-----------|-----------------|--------------|
| R2162.R520-03 | Right | 20           | Aluminium | 3         | 11.31           | 12.11        |
| R2162.R525-03 | Right | 25           | Aluminium | 3         | 14.14           | 14.94        |
| R2162.R530-03 | Right | 30           | Aluminium | 3         | 16.97           | 17.77        |
| R2162.R532-03 | Right | 32           | Aluminium | 3         | 18.10           | 18.90        |
| R2162.R535-03 | Right | 35           | Aluminium | 3         | 19.80           | 20.60        |
| R2162.R540-03 | Right | 40           | Aluminium | 3         | 22.63           | 23.43        |
| R2162.R545-03 | Right | 45           | Aluminium | 3         | 24.56           | 26.26        |
| R2162.R548-03 | Right | 48           | Aluminium | 3         | 27.15           | 27.95        |
| R2162.R550-03 | Right | 50           | Aluminium | 3         | 28.28           | 29.08        |
| R2162.R560-03 | Right | 60           | Aluminium | 3         | 33.94           | 34.74        |
| R2162.R564-03 | Right | 64           | Aluminium | 3         | 36.20           | 37.00        |
| R2162.R570-03 | Right | 70           | Aluminium | 3         | 39.60           | 40.40        |
| R2162.R580-03 | Right | 80           | Aluminium | 3         | 45.25           | 46.05        |
| R2162.R590-03 | Right | 90           | Aluminium | 3         | 50.91           | 51.71        |
| R2162.R596-03 | Right | 96           | Aluminium | 3         | 54.31           | 55.11        |
| R2162.R600-03 | Right | 100          | Aluminium | 3         | 56.57           | 57.37        |
| R2162.R628-03 | Right | 128          | Aluminium | 3         | 72.41           | 73.21        |
| R2162.R660-03 | Right | 160          | Aluminium | 3         | 90.51           | 91.31        |
| R2162.R520-05 | Right | 20           | Aluminium | 5         | 11.31           | 12.11        |
| R2162.R525-05 | Right | 25           | Aluminium | 5         | 14.14           | 14.94        |
| R2162.R530-05 | Right | 30           | Aluminium | 5         | 16.97           | 17.77        |
| R2162.R532-05 | Right | 32           | Aluminium | 5         | 18.10           | 18.90        |
| R2162.R535-05 | Right | 35           | Aluminium | 5         | 19.80           | 20.60        |
| R2162.R540-05 | Right | 40           | Aluminium | 5         | 22.63           | 23.43        |
| R2162.R545-05 | Right | 45           | Aluminium | 5         | 24.46           | 26.26        |
| R2162.R548-05 | Right | 48           | Aluminium | 5         | 27.15           | 27.95        |
| R2162.R550-05 | Right | 50           | Aluminium | 5         | 28.28           | 29.08        |
| R2162.R560-05 | Right | 60           | Aluminium | 5         | 33.94           | 34.74        |
| R2162.R564-05 | Right | 64           | Aluminium | 5         | 36.20           | 37.00        |
| R2162.R570-05 | Right | 70           | Aluminium | 5         | 39.60           | 40.40        |
| R2162.R580-05 | Right | 80           | Aluminium | 5         | 45.25           | 46.05        |
| R2162.R590-05 | Right | 90           | Aluminium | 5         | 50.91           | 51.71        |
| R2162.R596-05 | Right | 96           | Aluminium | 5         | 54.31           | 55.11        |

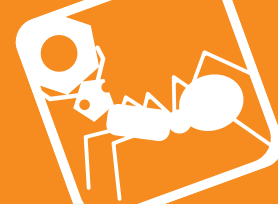


## 0,4 Module Right Hand Helical Gears

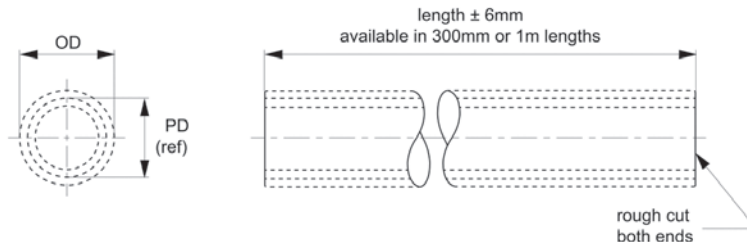
aluminium, pin hub

Other Precision  
Gears

| Order No.      | Hand  | No. of teeth | Material  | Bore dia. | Pitch dia. P.D. | Outside dia. |
|----------------|-------|--------------|-----------|-----------|-----------------|--------------|
| R2162.R600-05  | Right | 100          | Aluminium | 5         | 56.57           | 57.37        |
| R2162.R5128-05 | Right | 128          | Aluminium | 5         | 72.41           | 73.21        |
| R2162.R660-05  | Right | 160          | Aluminium | 5         | 90.51           | 91.31        |



**R2170**



**Material**

Stainless steel (DIN 1,4005).

Quality class Din 7/AGMA 10.

Adjacent hole centre  $\pm 0,06$ , Accumulative  
hole centre  $\pm 0,14$ .

**Technical Notes**

20° pressure angle.

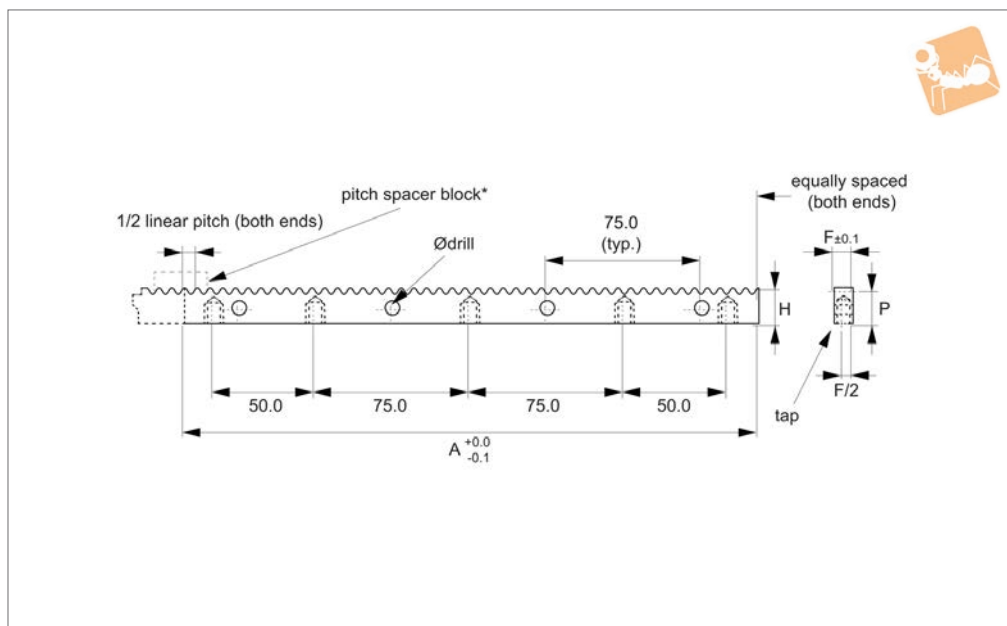
| Order No. | Module | Linear pitch | c     |
|-----------|--------|--------------|-------|
| R8M-1-G1  | 0.8    | 2.51         | 11.39 |
| R8M-2-G1  | 0.4    | 1.26         | 11.79 |



# 1,5/0,25 Module Precision Racks

stainless

Other Precision  
Gears



**R2172**

OTHER PRECISION GEARS

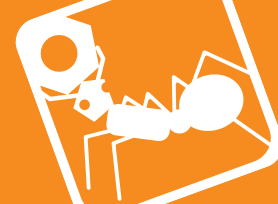
## Material

Stainless steel (DIN 1,4005).

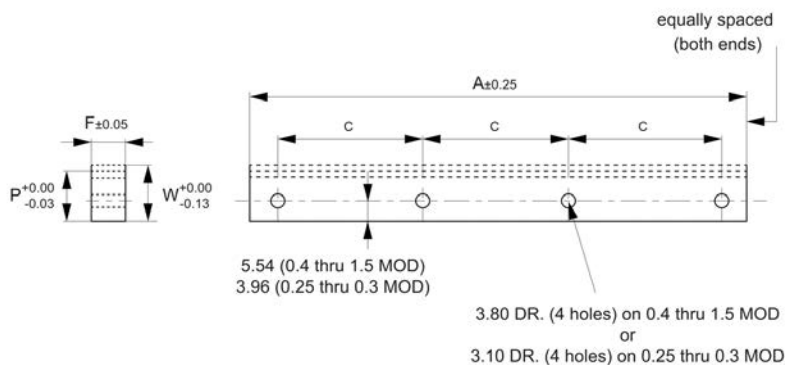
## Technical Notes

20° pressure angle.  
Quality class Din 7/AGMA 10.

| Order No. | Module | Linear pitch | a     | f   | b   | h<br>$+0.00 -0.13$ | P ref. | Ø Drill | Tap       |
|-----------|--------|--------------|-------|-----|-----|--------------------|--------|---------|-----------|
| R1M-1     | 1.5    | 4.71         | 282.7 | 9.0 | 7.9 | 18.42              | 16.91  | 7.0     | M 5 X 0,8 |
| R1M-2     | 1.25   | 3.93         | 282.8 | 9.0 | 7.9 | 18.42              | 17.17  | 7.0     | M 5 X 0,8 |
| R1M-3     | 1.0    | 3.14         | 279.6 | 5.8 | 5.5 | 12.07              | 11.07  | 3.8     | M 4 X 0,7 |
| R1M-4     | 0.8    | 2.51         | 281.5 | 5.8 | 5.5 | 12.07              | 11.26  | 3.8     | M 4 X 0,7 |
| R1M-5     | 0.6    | 1.88         | 280.9 | 5.8 | 5.5 | 12.07              | 11.47  | 3.8     | M 4 X 0,7 |
| R1M-6     | 0.5    | 1.57         | 279.6 | 5.8 | 5.5 | 12.07              | 11.56  | 3.8     | M 4 X 0,7 |
| R1M-7     | 0.4    | 1.26         | 280.2 | 5.8 | 5.5 | 12.07              | 11.66  | 3.8     | M 4 X 0,7 |
| R1M-8     | 0.3    | 0.94         | 280.9 | 4.2 | 4.0 | 8.89               | 8.59   | 3.1     | M 3 X 0,5 |
| R1M-9     | 0.25   | 0.78         | 279.6 | 4.2 | 4.0 | 8.89               | 8.64   | 3.1     | M 3 X 0,5 |



## R2174



### Material

Stainless Steel (DIN 1,4005).

### Technical Notes

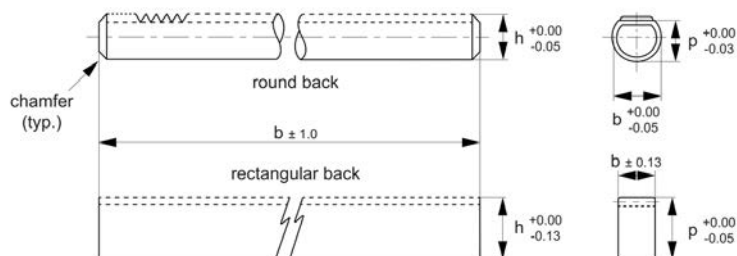
20° pressure angle.  
Quality class Din 7/AGMA 10.

| Order No. | Module | a     | f   | c    | P ref. | w    |
|-----------|--------|-------|-----|------|--------|------|
| R4M-5     | 1.5    | 249.8 | 5.8 | 80.0 | 10.7   | 12.2 |
| R4M-9     | 1.25   | 247.4 | 5.8 | 80.0 | 10.9   | 12.2 |
| R4M-11    | 1.0    | 248.2 | 5.8 | 80.0 | 11.2   | 12.2 |
| R4M-15    | 0.8    | 248.8 | 5.8 | 80.0 | 11.4   | 12.2 |
| R4M-17    | 0.6    | 224.3 | 5.8 | 70.0 | 11.6   | 12.2 |
| R4M-19    | 0.5    | 224.7 | 5.8 | 70.0 | 11.7   | 12.2 |
| R4M-21    | 0.4    | 174.7 | 5.8 | 55.0 | 11.8   | 12.2 |
| R4M-23    | 0.3    | 124.4 | 4.2 | 35.0 | 8.7    | 9.0  |
| R4M-25    | 0.25   | 74.6  | 4.2 | 20.0 | 8.8    | 9.0  |



# 0,5/0,25 Module Gear Racks stainless

Other Precision  
Gears



**R2176**

OTHER PRECISION GEARS

## Material

Stainless Steel (DIN 1,4005).

## Technical Notes

20° pressure angle.  
Quality class Din 7/AGMA 10.

| Order No. | Module | Rack style  | a   | h     | Ø B    | P ref. |
|-----------|--------|-------------|-----|-------|--------|--------|
| R2M-1     | 1.5    | Round       | 600 | 17.27 | 19.974 | 15.77  |
| R2M-2     | 1.25   | Round       | 600 | 13.46 | 19.974 | 12.21  |
| R2M-3     | 1.00   | Round       | 450 | 12.19 | 12.974 | 11.79  |
| R2M-4     | 0.8    | Round       | 450 | 8.64  | 9.974  | 7.84   |
| R2M-5     | 0.6    | Round       | 450 | 5.59  | 5.974  | 4.99   |
| R2M-6     | 0.5    | Round       | 450 | 5.59  | 5.974  | 5.09   |
| R2M-7     | 0.4    | Round       | 275 | 5.59  | 5.974  | 5.19   |
| R2M-8     | 0.3    | Round       | 275 | 3.96  | 4.755  | 3.66   |
| R2M-9     | 0.25   | Round       | 275 | 3.96  | 4.755  | 3.71   |
| R3M-1     | 1.5    | Rectangular | 600 | 18.54 | 9.02   | 17.04  |
| R3M-2     | 1.25   | Rectangular | 600 | 18.54 | 9.02   | 17.29  |
| R3M-3     | 1.00   | Rectangular | 450 | 12.19 | 5.84   | 11.19  |
| R3M-4     | 0.8    | Rectangular | 450 | 12.19 | 5.84   | 11.39  |
| R3M-5     | 0.6    | Rectangular | 450 | 12.19 | 5.84   | 11.59  |
| R3M-6     | 0.5    | Rectangular | 450 | 12.19 | 5.84   | 11.69  |
| R3M-7     | 0.4    | Rectangular | 275 | 12.19 | 5.84   | 11.79  |
| R3M-8     | 0.3    | Rectangular | 275 | 9.02  | 4.24   | 8.72   |
| R3M-9     | 0.25   | Rectangular | 275 | 9.02  | 4.24   | 8.77   |