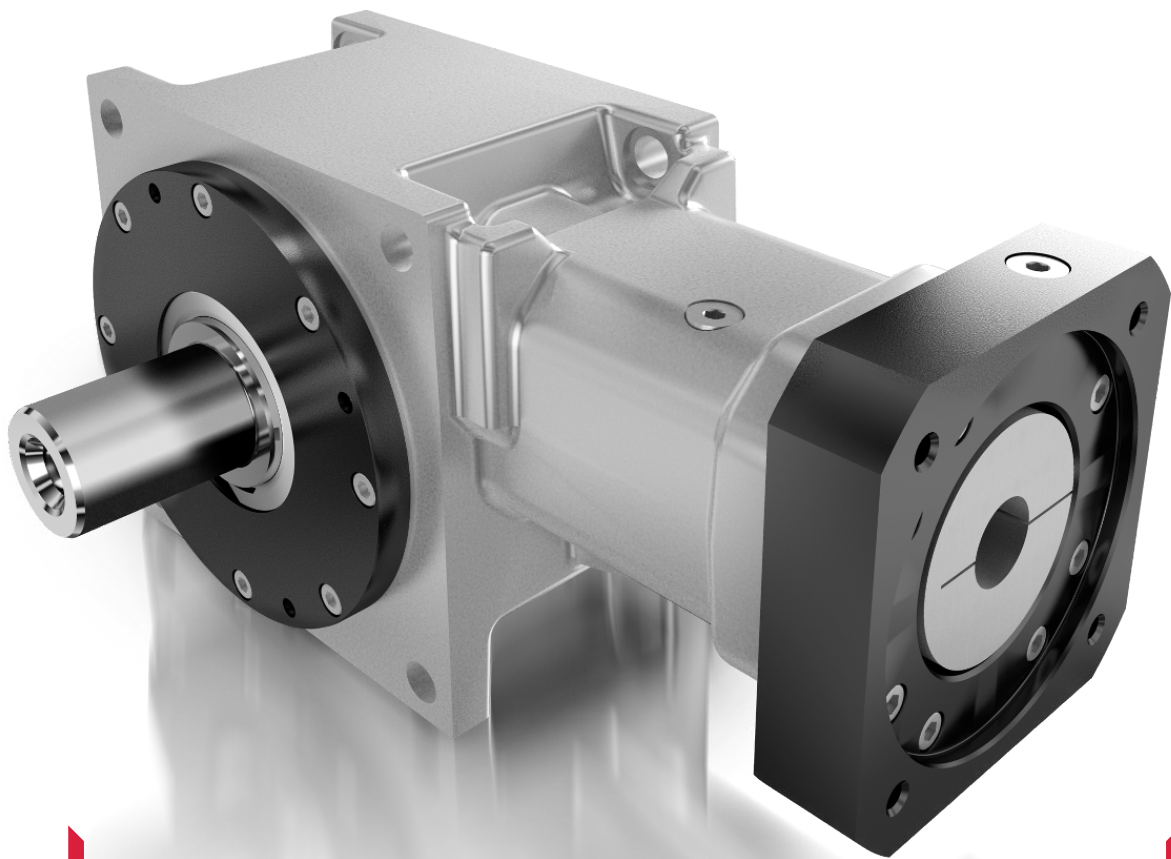


# HT – hypoid bevel gear boxes

Solid and Hollow Shaft Design



Zykloidgetriebe  
Cycloid Gearboxes



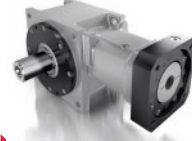
Planetengetriebe  
Planetary Gearboxes



Kegelrad-Planetengetriebe  
Bevel Planetary Gearboxes



Kegelradgetriebe  
Bevel Gearboxes



Hypoidgetriebe  
Hypoid Gearboxes



Hypoid-Stirnradgetriebe  
Hypoid Helical Gearboxes



Getriebemotoren  
Gear Motors

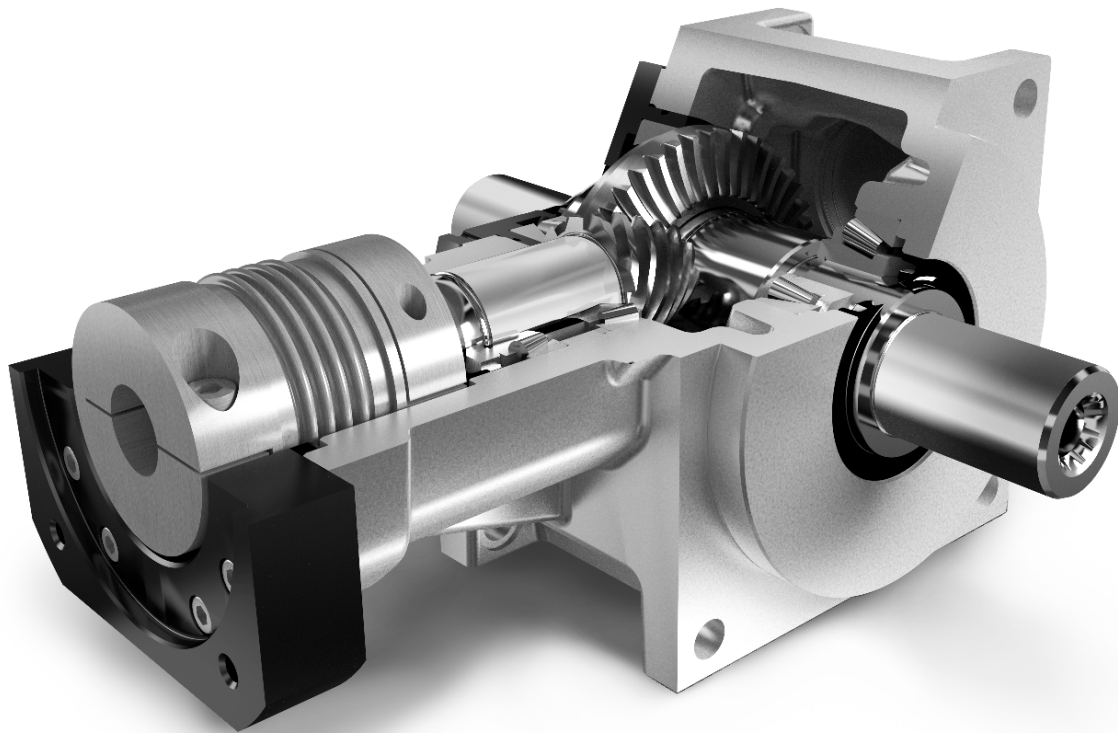


Verzahnungsentwicklung  
Gear Development

# EPPINGER hypoid gear boxes

The compact and robust design of the hypoid precision gearboxes is suitable for specific and highly dynamic applications. Our specially developed mono-bloc housing distinguishes this series with

extreme stability and provides maximum precision and efficiency. The highly flexible flange and coupling system enables our gearboxes to be connected to a host of servo motors without difficulty.



## FEATURES AND BENEFITS OF THE NEW HYPOID GEAR BOX SERIES

### THE HOUSING:

- Aluminum housing with high precision bearing seats and an integrated and via housing rip reinforced input neck which ensures a secure motor connection
- High power density of the gearboxes through compact housing dimensions
- Highly flexible gearbox interface via the motor flange for connecting all common servo motors
- Screw holes in the housing edges enable a stabil connection of the gearbox for various installation positions

### THE GEARS:

- Hypoid gears with high load capacity, designed and manufactured according to the Gleason process stand for optimal gearing efficiency, high transmission accuracy and reduced bearing load
- Reliable torque transmission through friction-locked, backlash-free connection of the crown gears on the output shaft
- Precise gear settings through measuring of the gear components and 100% running test in assembly

- The tooth flanks are ground to achieve maximum demands on transmission performance at minimal tooth clearance

### SHAFTS AND BEARINGS:

- The mono-bloc housing offers maximum stability and exact positioning of the bearing seats to each other
- Steel alloy shafts with super-finished bearing seats as basis for precise and heavy duty taper roller bearing
- Precise positioning and setting of bearings through the use of ground steel shims and interlocked bearing inner rings

### THE RANGE OF GEAR BOXES:

- At present 5 gearbox sizes are available in the ratio range  $i = 5 : 1$  to  $15 : 1$  (other ratios available upon request)
- Hypoid gearboxes available with solid and hollow shaft for shrink disc connection with selectable output side
- Design with robot flange upon request

## Performance data

|   | Abbreviation       | Unit              | HT090                         | HT115                         | HT140                         | HT170                         | HT215                         |
|---|--------------------|-------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Ratio <sup>1</sup>                          | i                  |                   | 5:1 8:1 12:1 15:1<br>6:1 10:1 | 5:1 8:1 12:1 15:1<br>6:1 10:1 | 5:1 8:1 12:1 15:1<br>6:1 10:1 | 5:1 8:1 12:1 15:1<br>6:1 10:1 | 5:1 8:1 12:1 15:1<br>6:1 10:1 |
| Rated output torque                         | T <sub>2N</sub>    | Nm                | 38 38 30 25                   | 75 75 60 50                   | 150 150 120 95                | 280 280 225 180               | 720 720 580 470               |
| Max. acceleration torque <sup>2</sup>       | T <sub>2B</sub>    | Nm                | 57 57 45 38                   | 113 113 90 75                 | 225 225 180 143               | 420 420 338 270               | 1080 1080 870 705             |
| Emergency stop torque <sup>3</sup>          | T <sub>2Not</sub>  | Nm                | 76 76 60 50                   | 150 150 120 100               | 300 300 240 190               | 560 560 450 360               | 1440 1440 1160 940            |
| Rated input speed                           | n <sub>1N</sub>    | U/min             | 2600 3100 3700 4000           | 2200 2600 3100 3400           | 1800 2100 2600 2800           | 1400 1700 2100 2400           | 900 1200 1400 1800            |
| Max. input speed                            | n <sub>1max</sub>  | U/min             | 8000                          | 8000                          | 7000                          | 6000                          | 5000                          |
| Torsional backlash - standard <sup>4</sup>  |                    | arcmin            | < 6                           | < 6                           | < 5                           | < 5                           | < 5                           |
| Torsional backlash - minimized <sup>4</sup> |                    | arcmin            | < 3                           | < 3                           | < 2                           | < 2                           | < 2                           |
| Max. permissible radial load <sup>5</sup>   | F <sub>R2max</sub> | N                 | 3.500                         | 5.000                         | 7.500                         | 10.000                        | 15.000                        |
| Max. permissible axial load                 | F <sub>A2max</sub> | N                 | 1.700                         | 2.500                         | 3.500                         | 5.000                         | 7.500                         |
| Efficiency at rated load                    | η                  | %                 | 91 - 98                       |                               |                               |                               |                               |
| Operating noise                             | L <sub>pa</sub>    | db(A)             | < 66                          | < 68                          | < 68                          | < 70                          | < 70                          |
| Service life                                | L <sub>h</sub>     | h                 | > 20.000                      |                               |                               |                               |                               |
| Lubrication                                 |                    |                   | Synthetic oil, ISO VG 150     |                               |                               |                               |                               |
| Operating temperature                       |                    | °C                | -20 to 90                     |                               |                               |                               |                               |
| Weight <sup>6</sup>                         | m                  | kg                | 3,4                           | 5,6                           | 9,7                           | 15,6                          | 34,6                          |
| Mass moment of inertia <sup>7</sup>         | J <sub>1</sub>     | kgcm <sup>2</sup> | Upon request                  |                               |                               |                               |                               |
| Torsional stiffness <sup>4</sup>            | C <sub>t</sub>     | Nm/arcmin         | Upon request                  |                               |                               |                               |                               |

<sup>1</sup> other ratios available upon request

<sup>2</sup> max. 1000 cycles per hour

<sup>3</sup> max. 1000x permissible short overload peaks during service life of gearbox

<sup>4</sup> referred to the output

<sup>5</sup> related to center of the shaft ends

<sup>6</sup> without motor flange

<sup>7</sup> referred to the input shaft

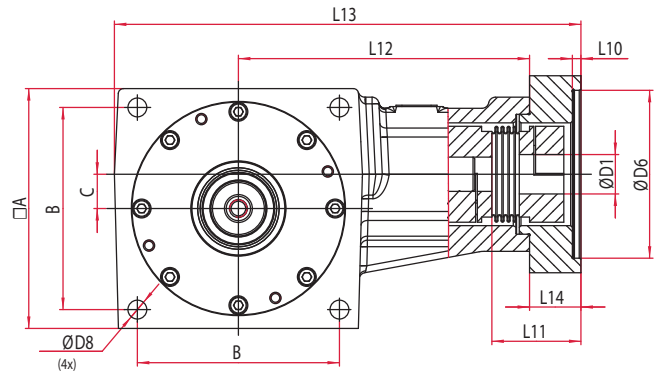
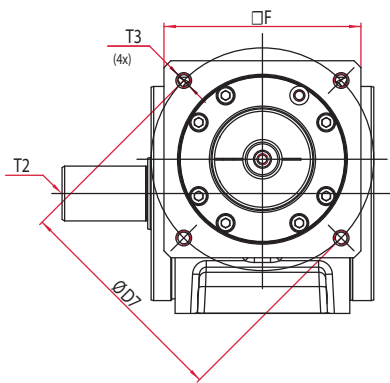
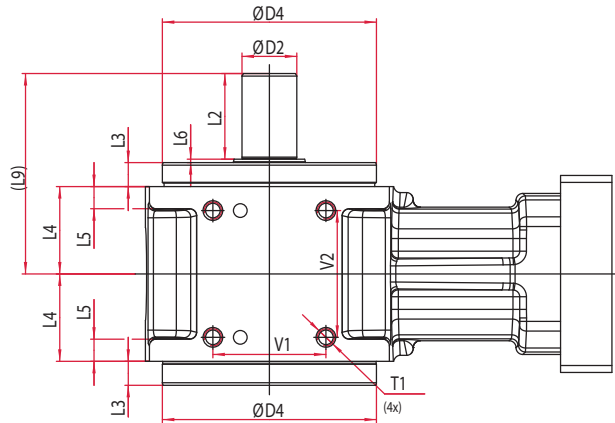
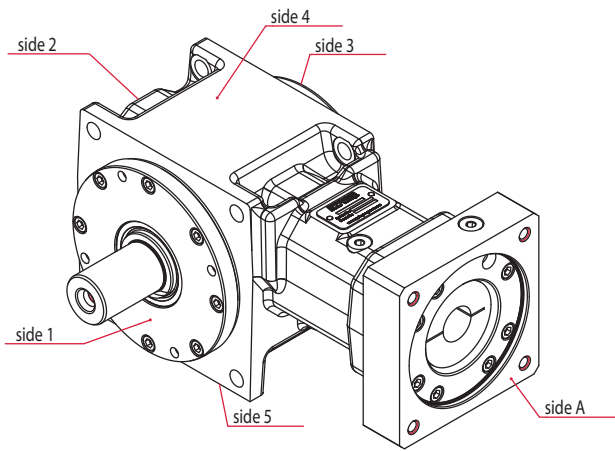
## Motor connection via motor flange system

|                   | HT090           | HT115           | HT140           | HT170          | HT215          |
|-------------------|-----------------|-----------------|-----------------|----------------|----------------|
| □F <sup>1</sup>   | 65 - 90         | 80 - 115        | 90 - 140        | 95 - 160       | 125 - 190      |
| Ø D1 <sup>1</sup> | 9 11 14 19      | 11 14 19 24     | 14 19 24 32     | 19 24 32       | 24 32 38       |
| Ø D6              | motor-specific  | motor-specific  | motor-specific  | motor-specific | motor-specific |
| Ø D7              | motor-specific  | motor-specific  | motor-specific  | motor-specific | motor-specific |
| L10               | motor-specific  | motor-specific  | motor-specific  | motor-specific | motor-specific |
| L11               | 38 38 38 43     | 43 43 43 53     | 58 58 58 62     | 56 56 62       | 70 83 90       |
| L13 <sup>2</sup>  | 190 190 190 195 | 234 234 234 244 | 270 270 270 280 | 312 312 317    | 393 408 413    |
| L14               | 21 21 21 26     | 25 25 25 35     | 30 30 30 40     | 32 32 37       | 52 65 72       |
| T3                | motor-specific  | motor-specific  | motor-specific  | motor-specific | motor-specific |

<sup>1</sup> other dimensions on request

<sup>2</sup> exact dimensions on gearbox datasheet

# Solid Shaft Design

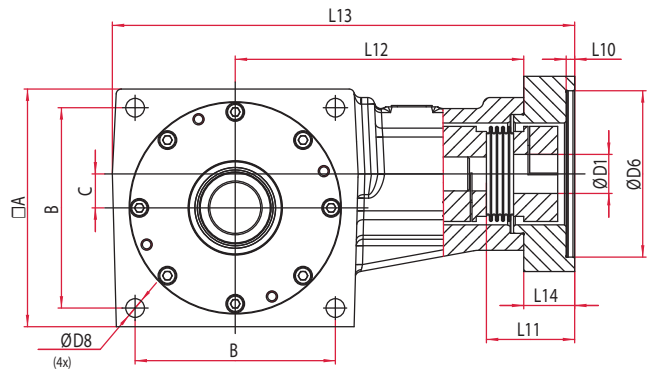
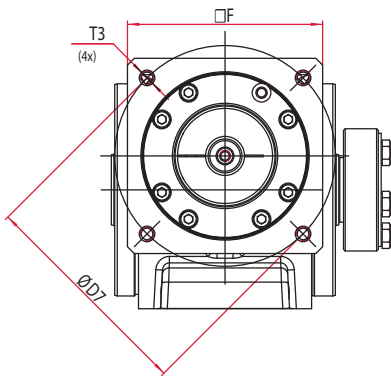
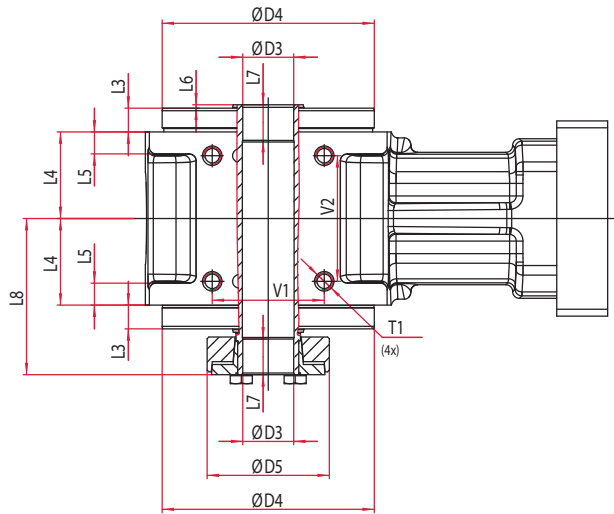
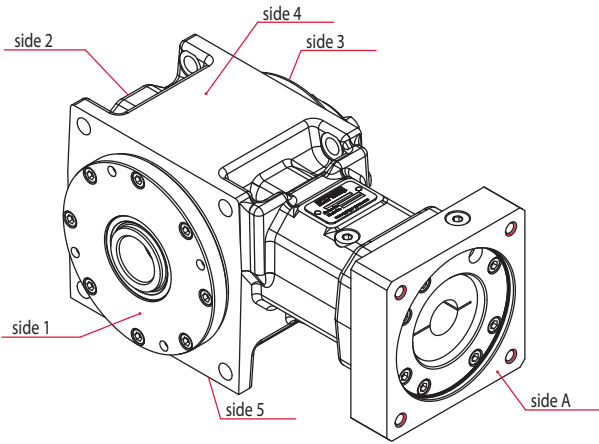


Solid Shaft Design (dimensions in mm)

|      | HT090  | HT115   | HT140    | HT170    | HT215    |
|------|--------|---------|----------|----------|----------|
| □A   | 90     | 115     | 140      | 170      | 215      |
| B    | 78     | 98      | 118      | 144      | 182      |
| C    | 10     | 15      | 20       | 25       | 34       |
| Ø D2 | 20 k6  | 24 k6   | 32 k6    | 40 k6    | 55 k6    |
| Ø D4 | 89 g7  | 105 g7  | 125 g7   | 150 g7   | 195 g7   |
| Ø D8 | 6,6    | 9       | 11       | 13,5     | 17,5     |
| L2   | 35     | 40      | 50       | 60       | 90       |
| L3   | 12     | 12      | 14       | 14       | 16       |
| L4   | 36     | 42      | 51       | 59       | 79       |
| L5   | 9      | 11      | 13       | 16       | 19       |
| L6   | 2      | 2       | 2        | 2        | 2        |
| L9   | 85     | 96      | 117      | 135      | 187      |
| L12  | 123    | 150     | 170      | 197      | 232      |
| T1   | M6 x 8 | M8 x 16 | M10 x 20 | M12 x 24 | M16 x 28 |
| T2*  | M6     | M8      | M10      | M16      | M20      |
| V1   | 44     | 54      | 66       | 80       | 104      |
| V2   | 54     | 60      | 74       | 86       | 125      |

\* Centering bore shaft end acc. to form DS, DIN 332

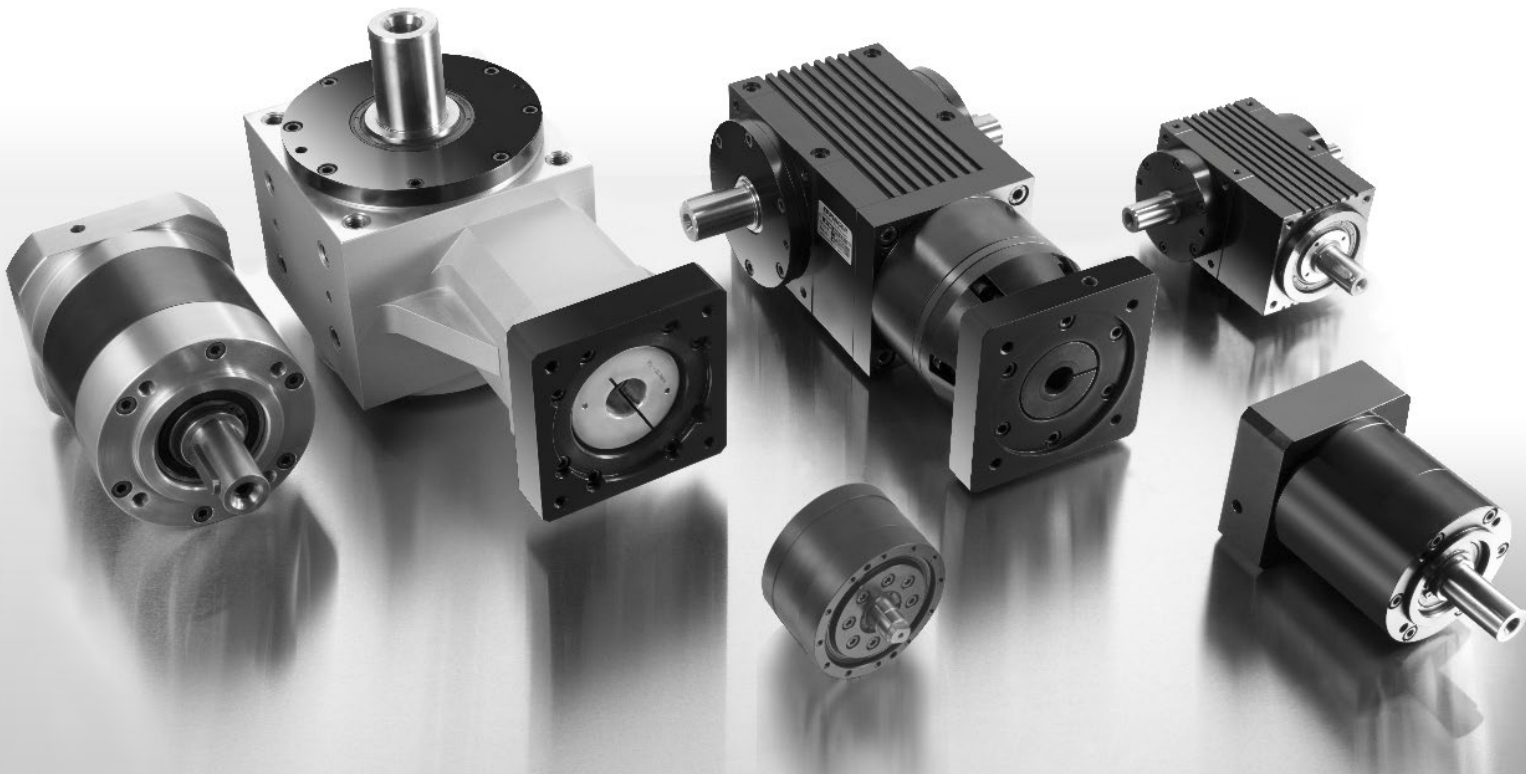
# Hollow Shaft Design



Hollow Shaft Design (dimensions in mm)

|      | HT090  | HT115   | HT140    | HT170    | HT215    |
|------|--------|---------|----------|----------|----------|
| □A   | 90     | 115     | 140      | 170      | 215      |
| B    | 78     | 98      | 118      | 144      | 182      |
| C    | 10     | 15      | 20       | 25       | 34       |
| Ø D3 | 20 H7  | 25 H7   | 30 H7    | 40 H7    | 55 H7    |
| Ø D4 | 89 g7  | 105 g7  | 125 g7   | 150 g7   | 195 g7   |
| Ø D5 | 50     | 60      | 72       | 90       | 115      |
| Ø D8 | 6,6    | 9       | 11       | 13,5     | 17,5     |
| L3   | 12     | 12      | 14       | 14       | 16       |
| L4   | 36     | 42      | 51       | 59       | 79       |
| L5   | 9      | 11      | 13       | 16       | 19       |
| L6   | 2      | 2       | 2        | 2        | 2        |
| L7   | 17     | 19      | 21       | 25       | 28       |
| L8   | 69     | 78      | 92       | 104      | 130      |
| L12  | 123    | 150     | 170      | 197      | 232      |
| T1   | M6 x 8 | M8 x 16 | M10 x 20 | M12 x 24 | M16 x 28 |
| V1   | 44     | 54      | 66       | 80       | 104      |
| V2   | 54     | 60      | 74       | 86       | 125      |

# EPPINGER precision gear boxes at a glance



Our product range includes **bevel-, hypoid-, planetary-, cycloid-, special customized gearboxes and high precision gear technology**. The **compact mono-bloc design** makes our solutions **unique**.



**EPPINGER**   
PRECISION GEAR SOLUTIONS