

## Basic safety factors for drive belts (tooth belts)

In our experience, a safety factor of 1.4 is sufficient for industrially operated timing belt drives. If special operating conditions are required, you can apply a safety factor in accordance with the table below. We will be happy to assist you with the calculation and dimensioning of your belt drive.

| DRIVEN MACHINE  | DRIVE  |                  |                   |   |                  |                   |
|---|--|------------------|-------------------|---|------------------|-------------------|
| The driven machines listed below represent only a selection of applications. Select an application that matches your requirements as closely as possible in terms of its performance characteristics.   | AC motors: normal torque, squirrel-cage motors, synchronous motors, single-phase motors, frequency-controlled motors. Direct current motors: Shunt wound, stepper motors. Internal combustion engines with multiple cylinders. |                  |                   | AC/three-phase motors, high torque, single-phase, main connection, slip ring rotor. Direct current motors: Main circuit, double circuit. Servomotors 1-cylinder internal combustion motors, transmission shafts, couplings. |                  |                   |
|   | Short-term use   | Normal use       | Permanent use     | Short-term use  | Normal use       | Permanent use     |
|   | up to 8 hours a day  | 8-16 hours daily | 16-24 hours daily | up to 8 hours a day   | 8-16 hours daily | 16-24 hours daily |
| Filling systems, Instruments, Measuring devices, Medical devices, Office machines.  | 1  | 1,2              | 1,4               | 1,2   | 1,4              | 1,6               |
| Floor cleaning equipment. Sewing machines. Drum and cone sieves. Woodworking machines (light): Band saws, drilling machines, lathes.  | 1,1  | 1,3              | 1,5               | 1,3   | 1,5              | 1,7               |
| Agitators for liquids. Conveyor systems for smaller goods. Drilling machines. Lathes. Saws. Laundry machines. Woodworking machines (heavy): Circular saws, peeling machines, planing machines.  | 1,2  | 1,4              | 1,6               | 1,6   | 1,8              | 2                 |
| Agitators for semi-liquid masses. Centrifugal compressors. Conveying systems for ore, coal, sand. Dough mixers. Tools: grinders, milling cutters, boring mills, rollers. Paper machines (except kneading machines): Presses, punching machines, shearing machines. Printing machines. Centrifugal and gear pumps. Centrifugal and vibration screening machines. | 1,3  | 1,5              | 1,7               | 1,6   | 1,8              | 2                 |
| Brick and clay molding machines (with the exception of pan mills). Plate and bucket conveyors, elevators. Unloaders, washing machines. Fans, centrifugal blowers. Generators and exciters. Elevators. Rubber calenders, mills, spraying machines.   | 1,4  | 1,6              | 1,8               | 1,8   | 2                | 2,2               |
| Centrifuges. Screw conveyors. Hammer mills. Paper kneading machines. Textile machines.  | 1,5  | 1,7              | 1,9               | 1,9   | 2,1              | 2,3               |
| Capsule blower. Atomizer.   | 1,6  | 1,8              | 2                 | 2   | 2,2              | 2,4               |
| Piston compressors. Different types of crushers. Heavy duty mills like rubble mills. Piston pumps. Sawmill machines.  | 1,7  | 1,9              | 2,1               | 2,1   | 2,3              | 2,5               |

The operating factors specified above are appropriate for most applications. It may sometimes be necessary to correct the operating factor using your experience of the drive conditions and their characteristics.

Our experts will gladly assist you with the calculation of your belt drive. Please contact us at [engineering@lenze-selection.com](mailto:engineering@lenze-selection.com)