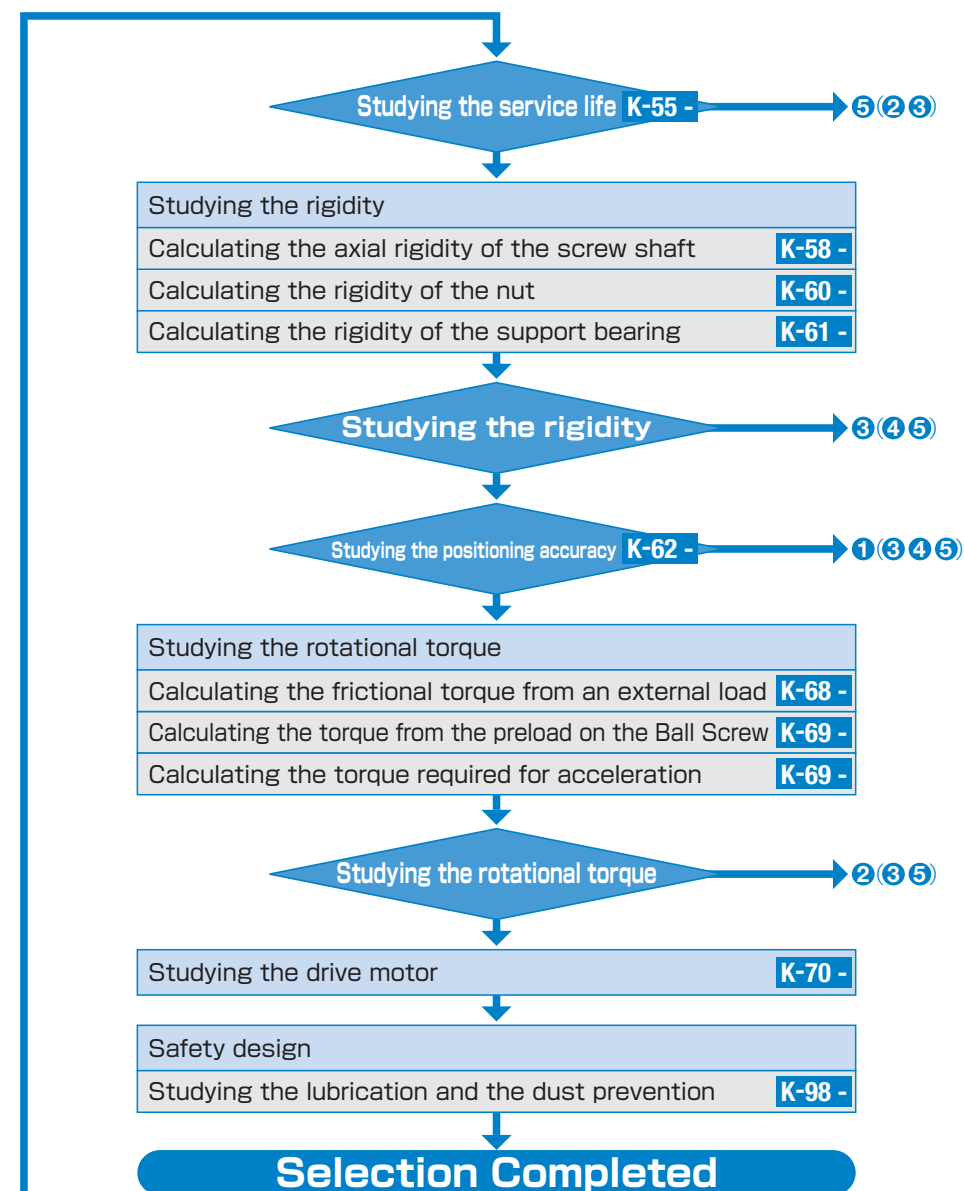
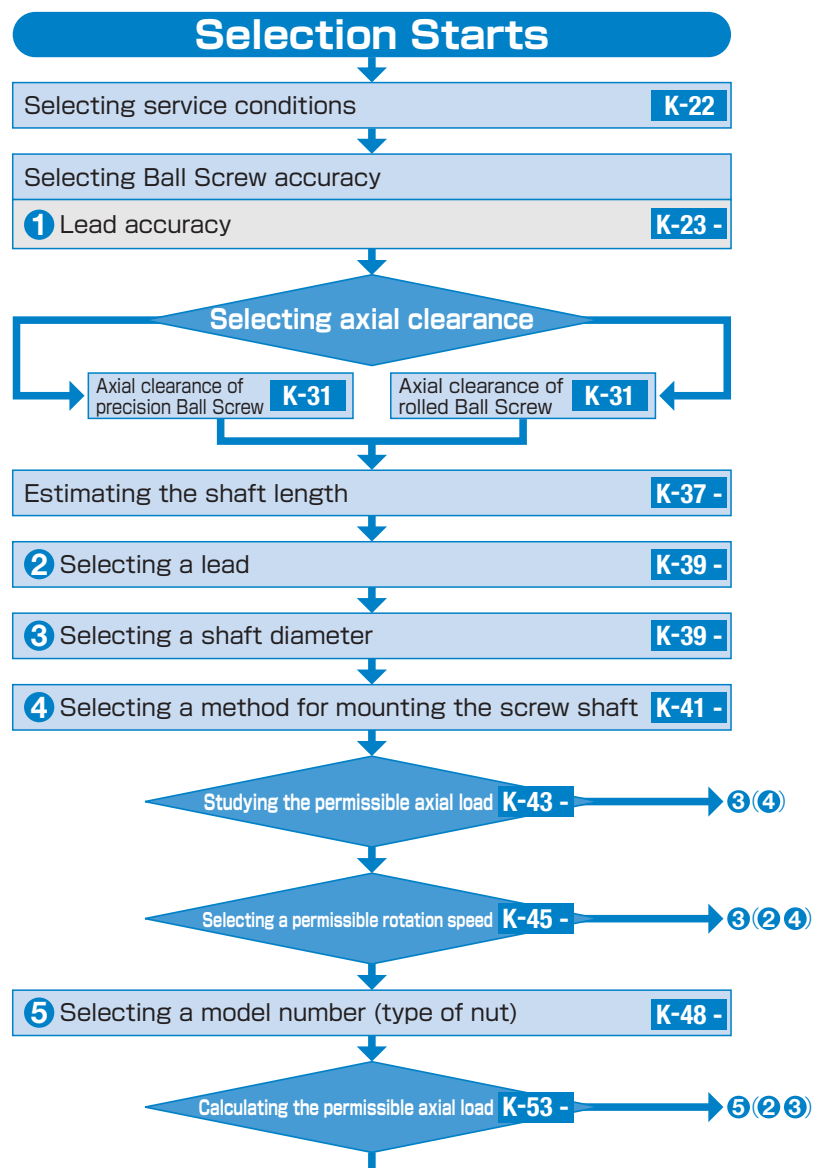


### 3. Flow Chart for Selecting a Ball Screw

#### Steps for Selecting a Ball Screw

When selecting a Ball Screw, it is necessary to make a selection from various angles. The following is a flow chart as a measuring stick for selecting a Ball Screw.



# [Service Conditions of the Ball Screw]

The following conditions are required when selecting a Ball Screw.

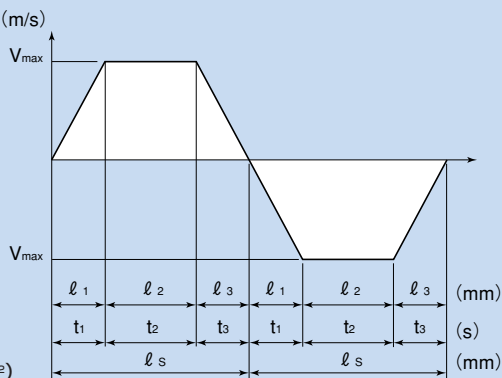
Transfer orientation	(horizontal, vertical, etc.)
Transferred mass	$m$ (kg)
Table guide method	(sliding, rolling) (m/s)
Friction coefficient of the guide surface	$\mu$ (—)
Resistance of the guide surface	$f$ (N)
External load in the axial direction	$F$ (N)
Desired service life time	$L_h$ (h)

Stroke length	$\ell_s$ (mm)
Operating speed	$V_{max}$ (m/s)
Acceleration time	$t_1$ (s)
Even speed time	$t_2$ (s)
Deceleration time	$t_3$ (s)
Acceleration	$\alpha = \frac{V_{max}}{t_1}$ (m/s <sup>2</sup> )

Acceleration distance	$\ell_1 = V_{max} \times t_1 \times 1000 / 2$ (mm)
Even speed distance	$\ell_2 = V_{max} \times t_2 \times 1000$ (mm)
Deceleration distance	$\ell_3 = V_{max} \times t_3 \times 1000 / 2$ (mm)
Reciprocations per minute	$n$ (min <sup>-1</sup> )

Positioning accuracy	(mm)
Positioning repeatability	(mm)
Backlash	(mm)
Minimum feed distance	$s$ (mm/pulse)

Drive motor	(AC servomotor, stepping motor, etc.)
Motor rated rotation speed	$N_{MO}$ (min <sup>-1</sup> )
Motor inertial moment	$J_M$ (kg·m <sup>2</sup> )
Motor resolution	(pulse/rev.)
Reduction ratio	$A$ (—)



Speed Diagram