

Drives

Life-time graphs

GFC escalator gear units

FTS125.1, FTS160.1, FTS180.1

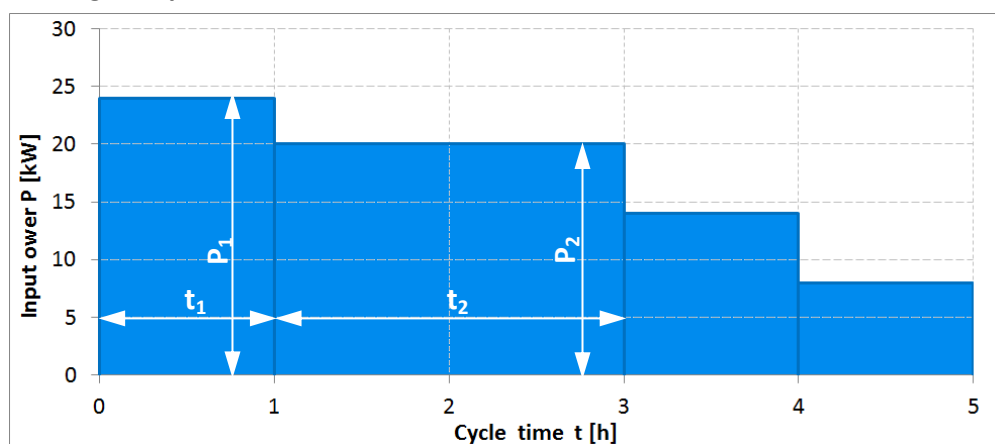
FTSST158.1, FTSST180.1, FTSST212.1

*Worm toothings according to DIN 3996:**2012***

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Guideline for selection of gear unit size

1. Existing load pattern



2. Total cycle time:

$$t_{tot} = t_1 + t_2 + t_3 + \dots + t_i$$

3. Equivalent input power P_{eq} :

$$P_{eq} = \sqrt[3]{P_1^3 \cdot \frac{t_1}{t_{tot}} + P_2^3 \cdot \frac{t_2}{t_{tot}} + P_3^3 \cdot \frac{t_3}{t_{tot}} + \dots + P_i^3 \cdot \frac{t_i}{t_{tot}}}$$

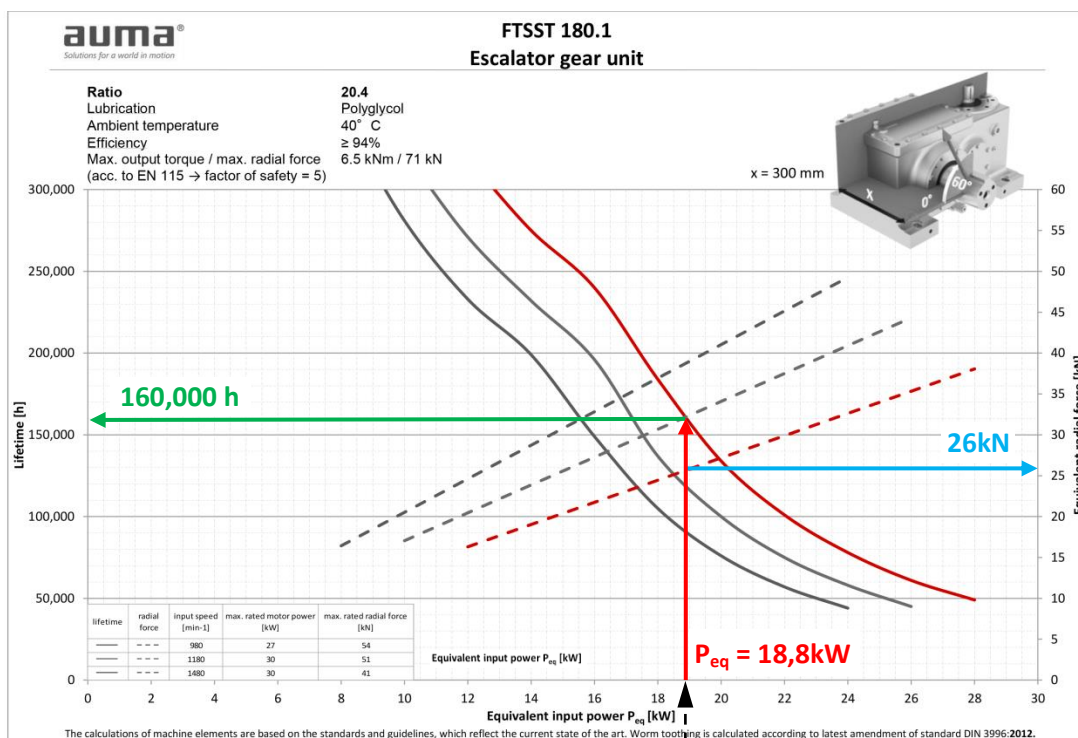
Example:

$$t_{tot} = 5h$$

$$P_{eq} = 18,8 \text{ kW}$$

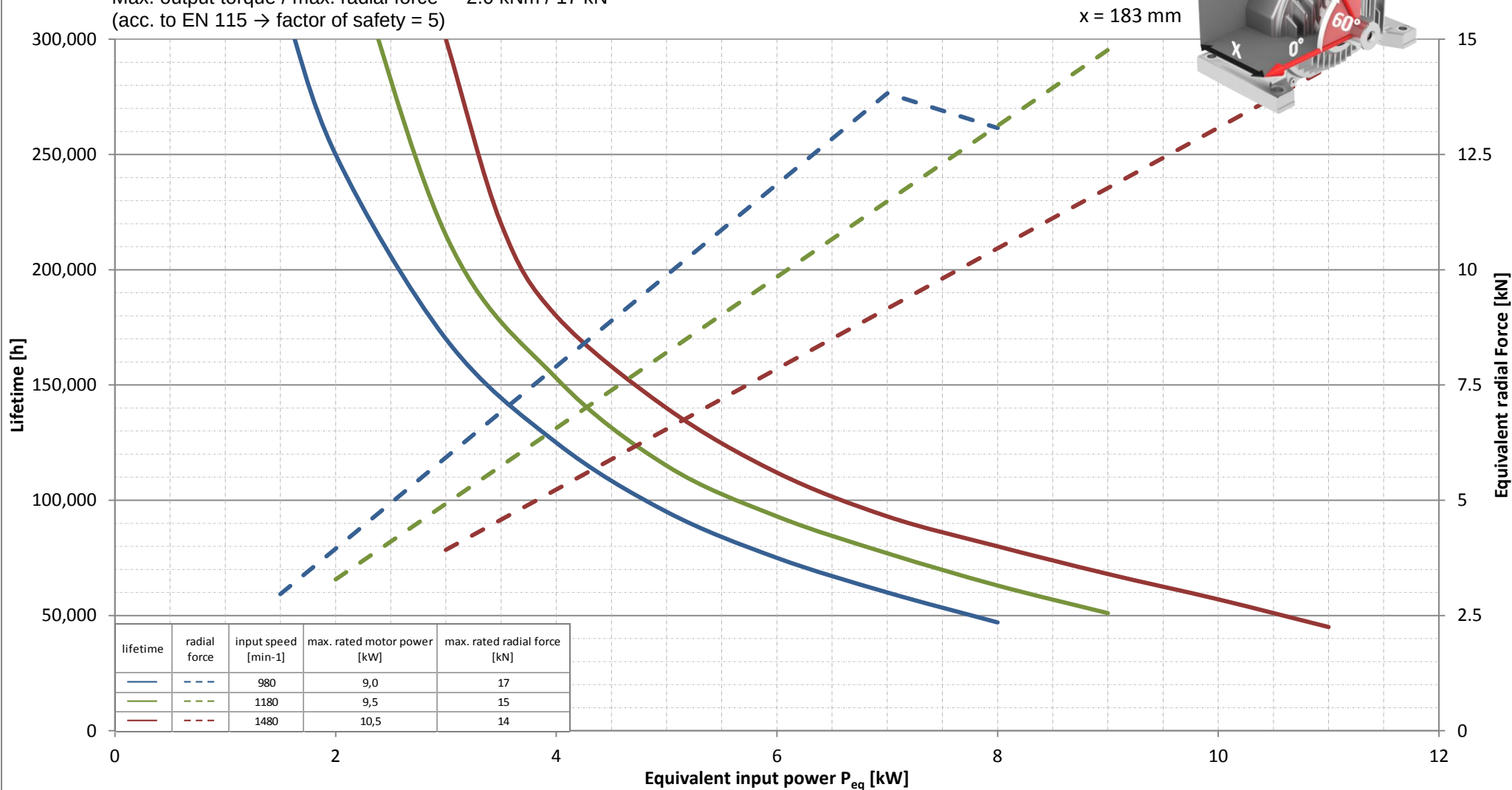
4. Graphical determination of resulting life-time and permissible radial force on output shaft

Exemplarily selected drive: FTSST180.1 with ratio i=20.4 and motor speed 1480rpm:



FTS 125.1 Escalator gear unit

Ratio 20.5
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 91%
Max. output torque / max. radial force 2.0 kNm / 17 kN
 (acc. to EN 115 → factor of safety = 5)

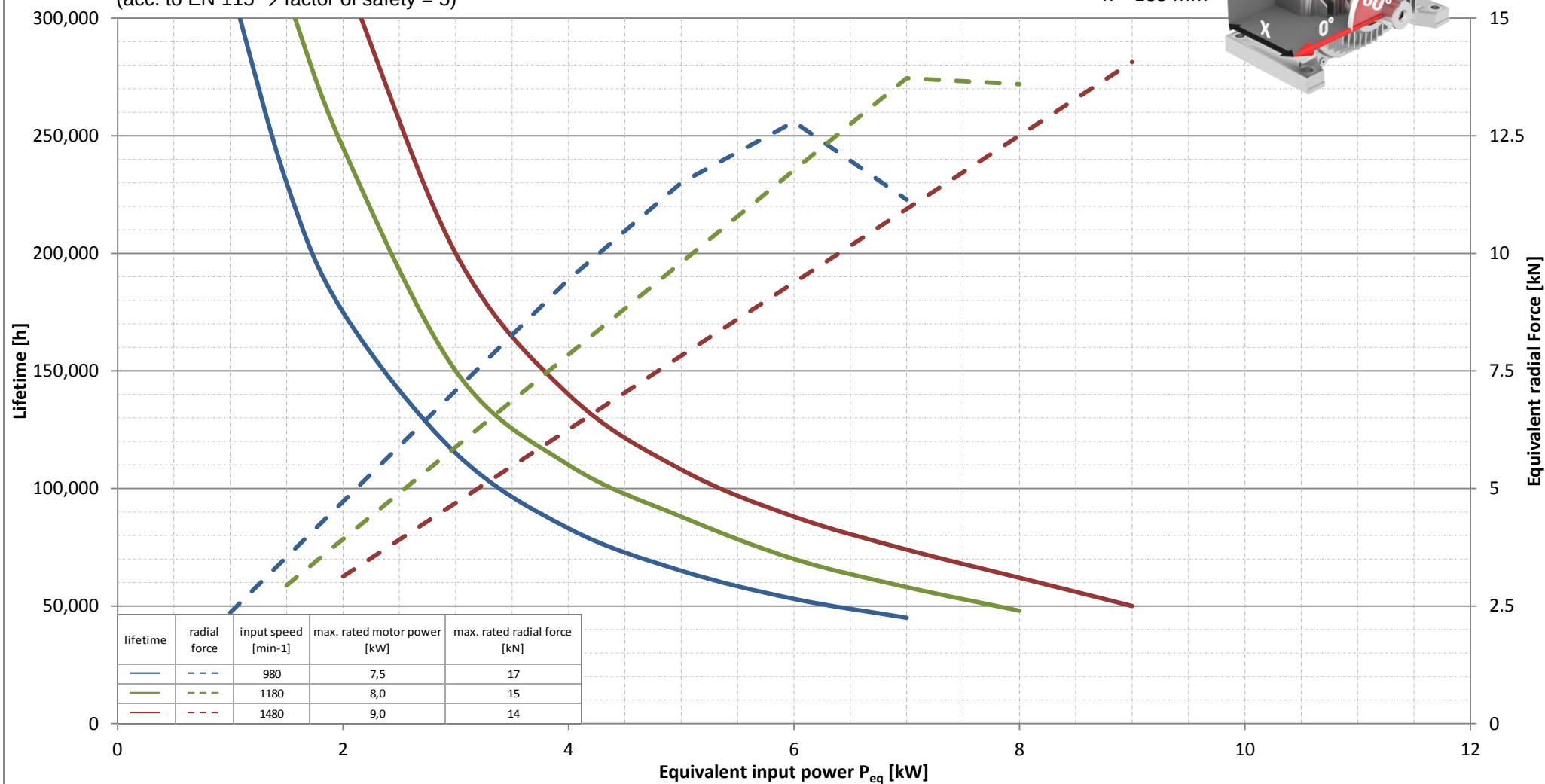
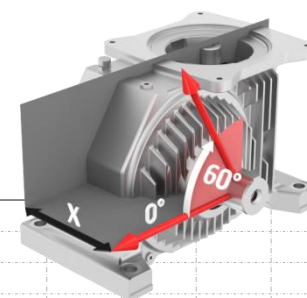


The calculations of machine elements are based on the standards and guidelines, which reflect the current state of the art. Worm toothing is calculated according to latest amendment of standard DIN 3996:2012.

FTS 125.1 Escalator gear unit

Ratio 24.5
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 91%
Max. output torque / max. radial force 2.0 kNm / 17 kN
 (acc. to EN 115 → factor of safety = 5)

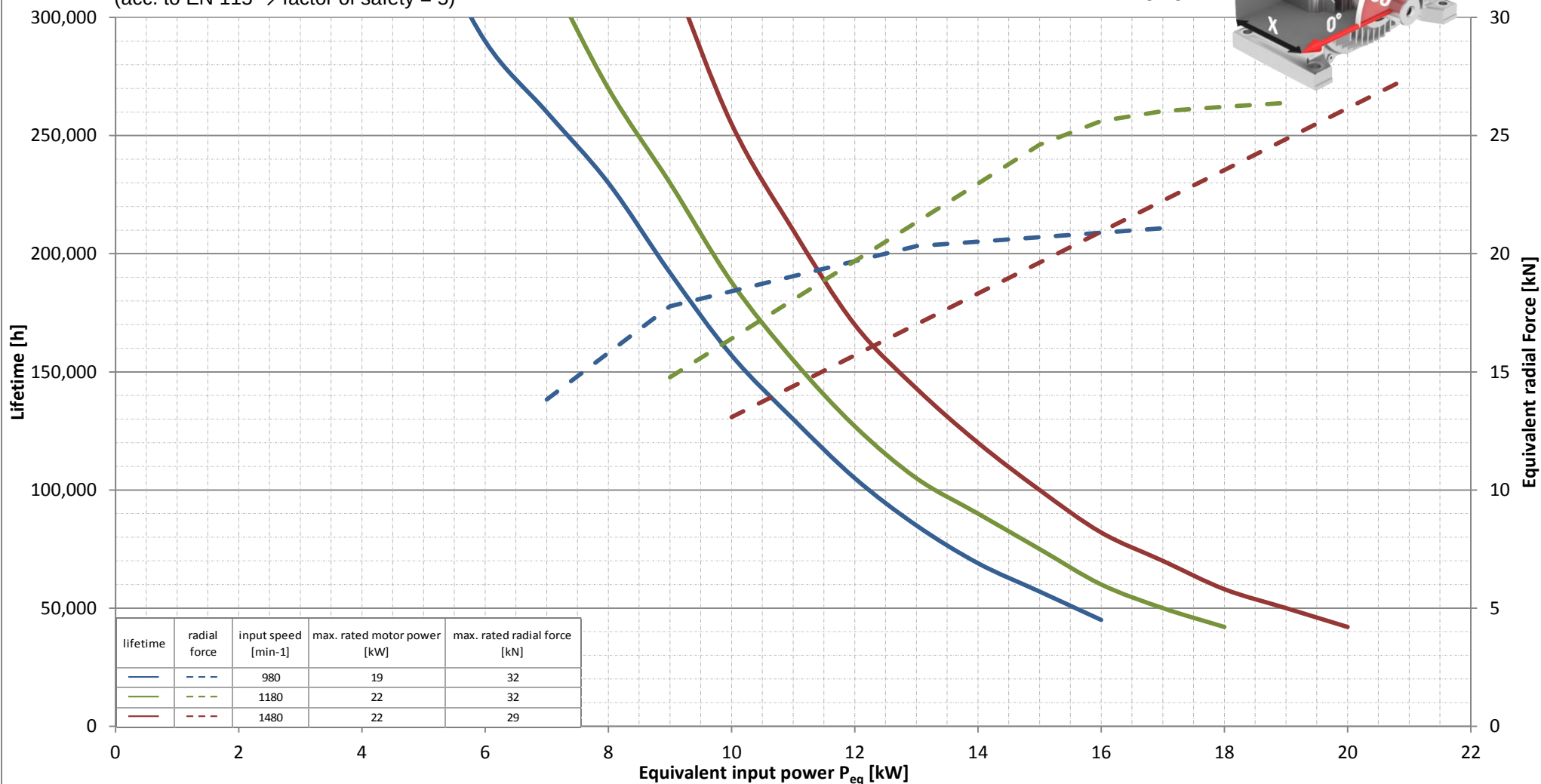
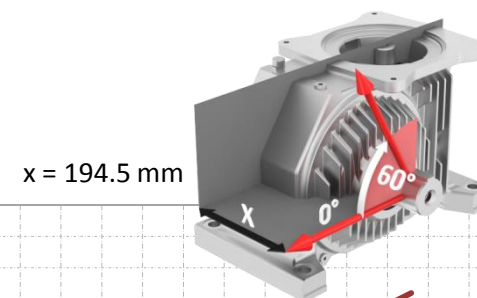
x = 183 mm



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FTS 160.1 Escalator gear unit

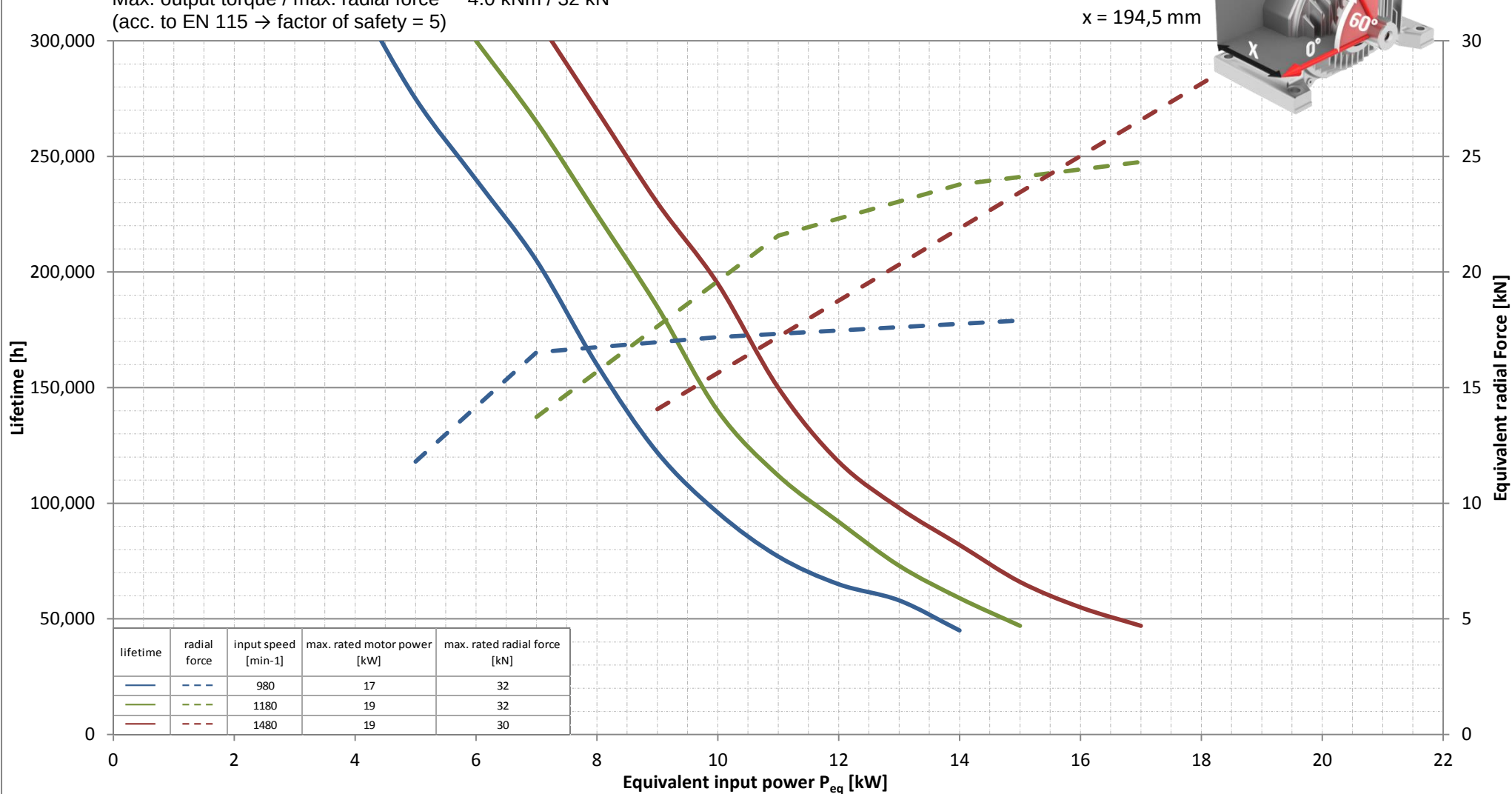
Ratio 20.5
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 91%
Max. output torque / max. radial force
 (acc. to EN 115 → factor of safety = 5) 4.0 kNm / 32 kN



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FTS 160.1 Escalator gear unit

Ratio 24.5
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 91%
Max. output torque / max. radial force 4.0 kNm / 32 kN
 (acc. to EN 115 → factor of safety = 5)

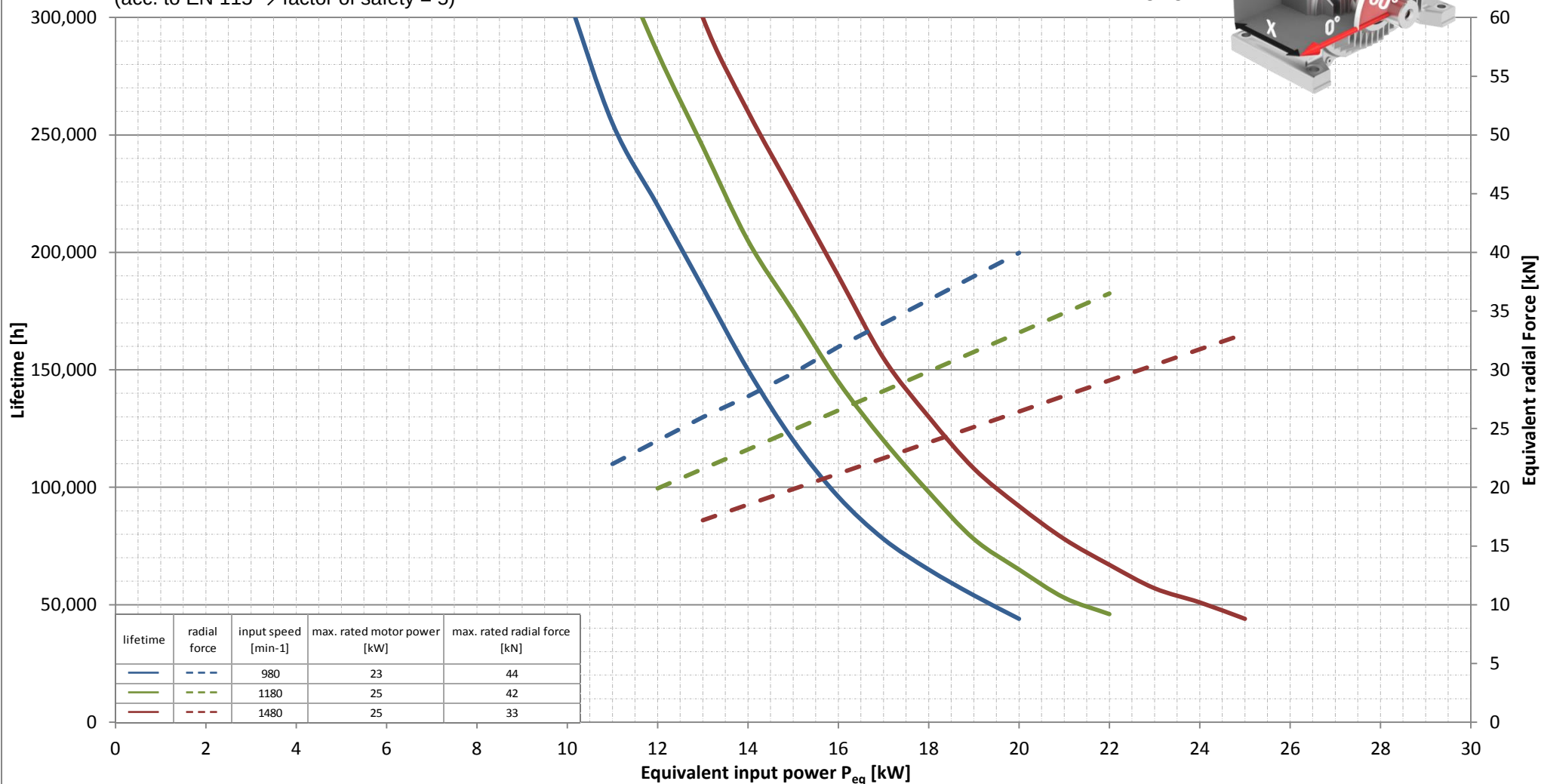
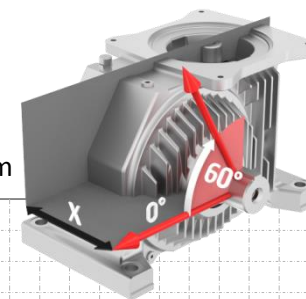


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FTS 180.1 Escalator gear unit

Ratio 20.5
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 92%
Max. output torque / max. radial force 4.4 kNm / 44 kN
 (acc. to EN 115 → factor of safety = 5)

x = 252.5 mm

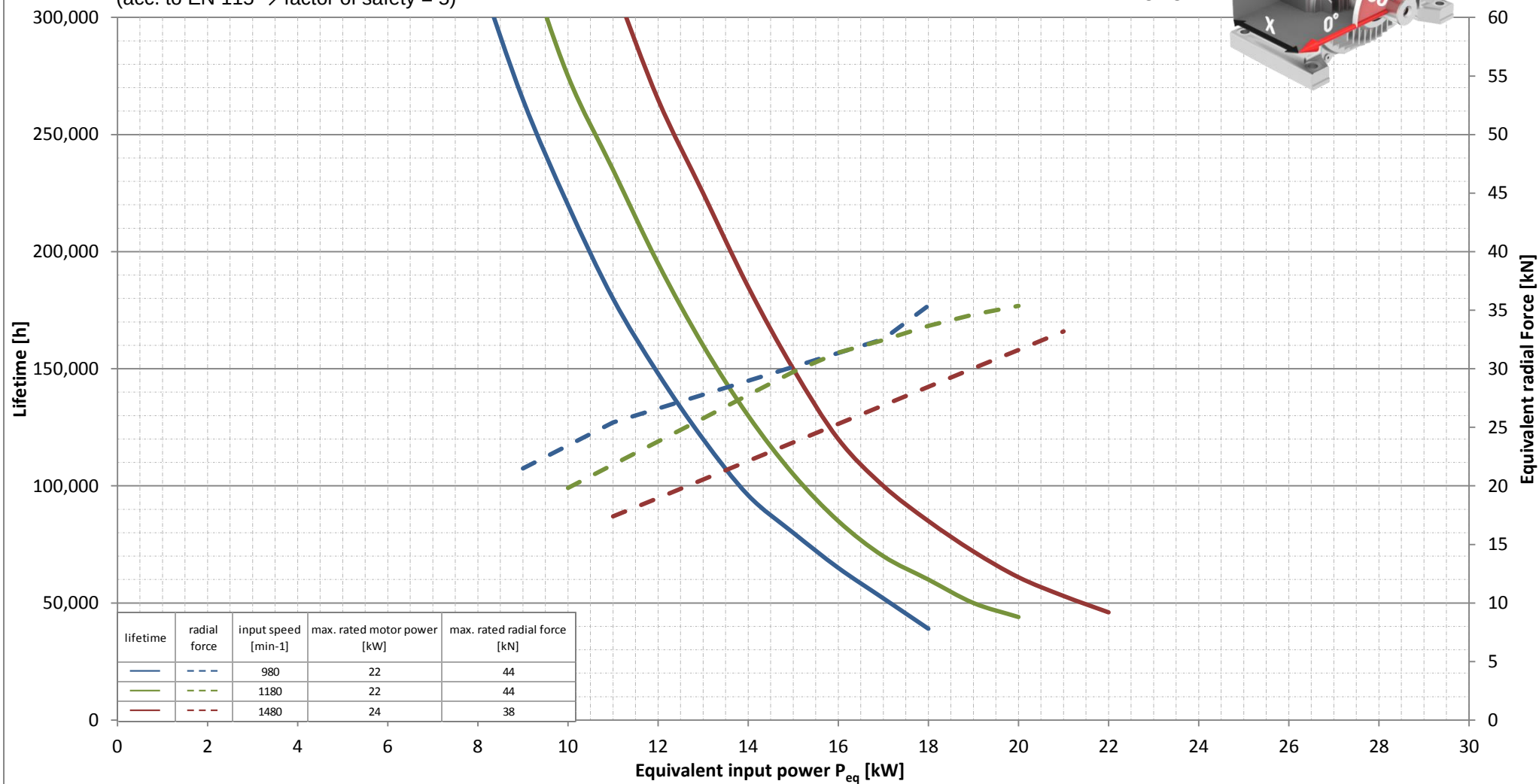
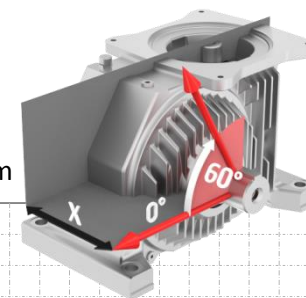


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FTS 180.1 Escalator gear unit

Ratio 24.5
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 92%
Max. output torque / max. radial force 4.4 kNm / 44 kN
 (acc. to EN 115 → factor of safety = 5)

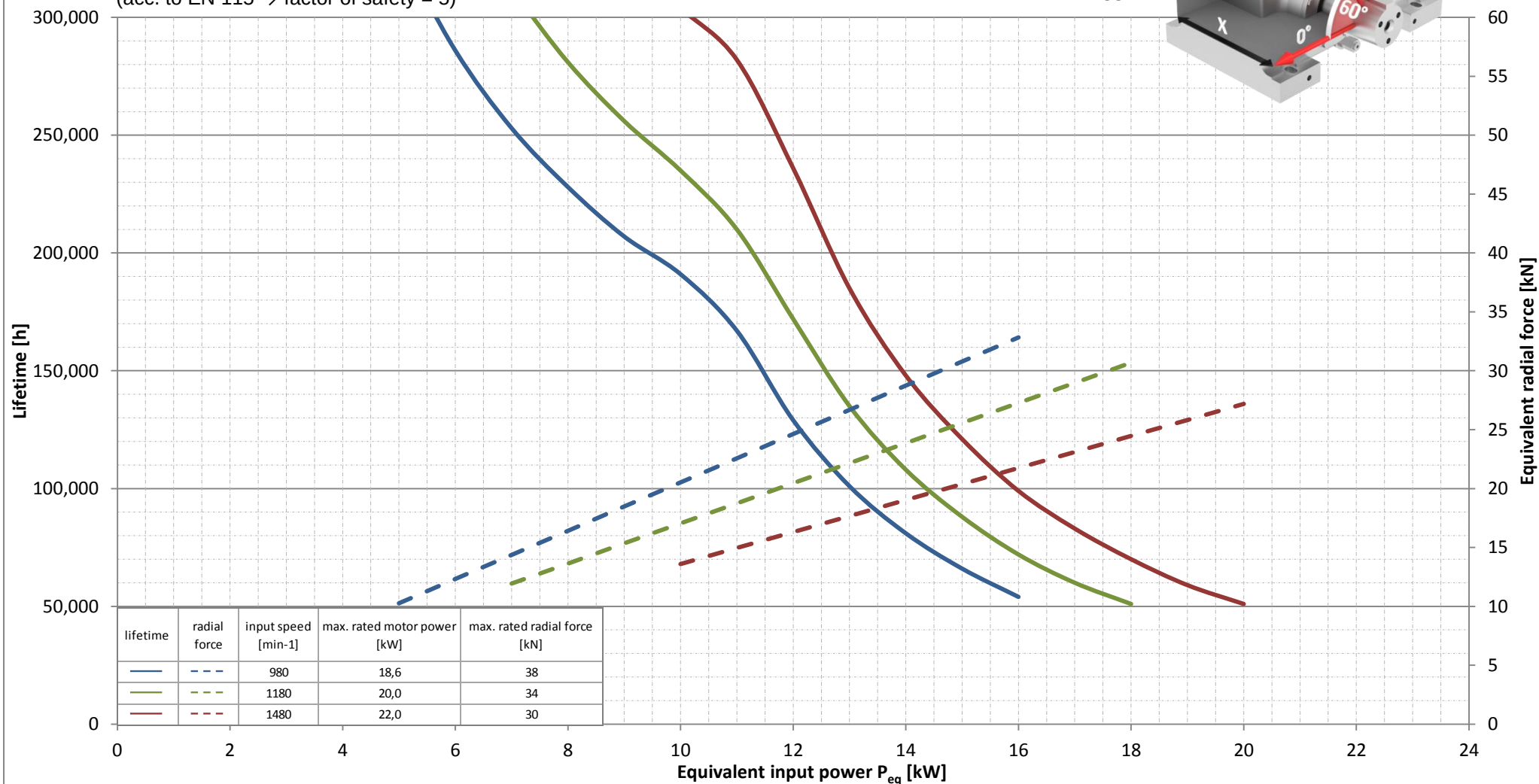
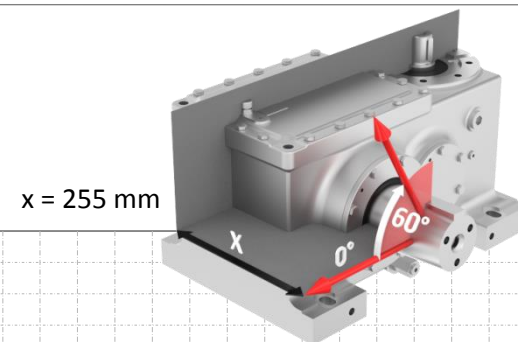
x = 252.5 mm



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FTSST 158.1 Escalator gear unit

Ratio 20.4
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 94%
Max. output torque / max. radial force 4.6 kNm / 50 kN
 (acc. to EN 115 → factor of safety = 5)

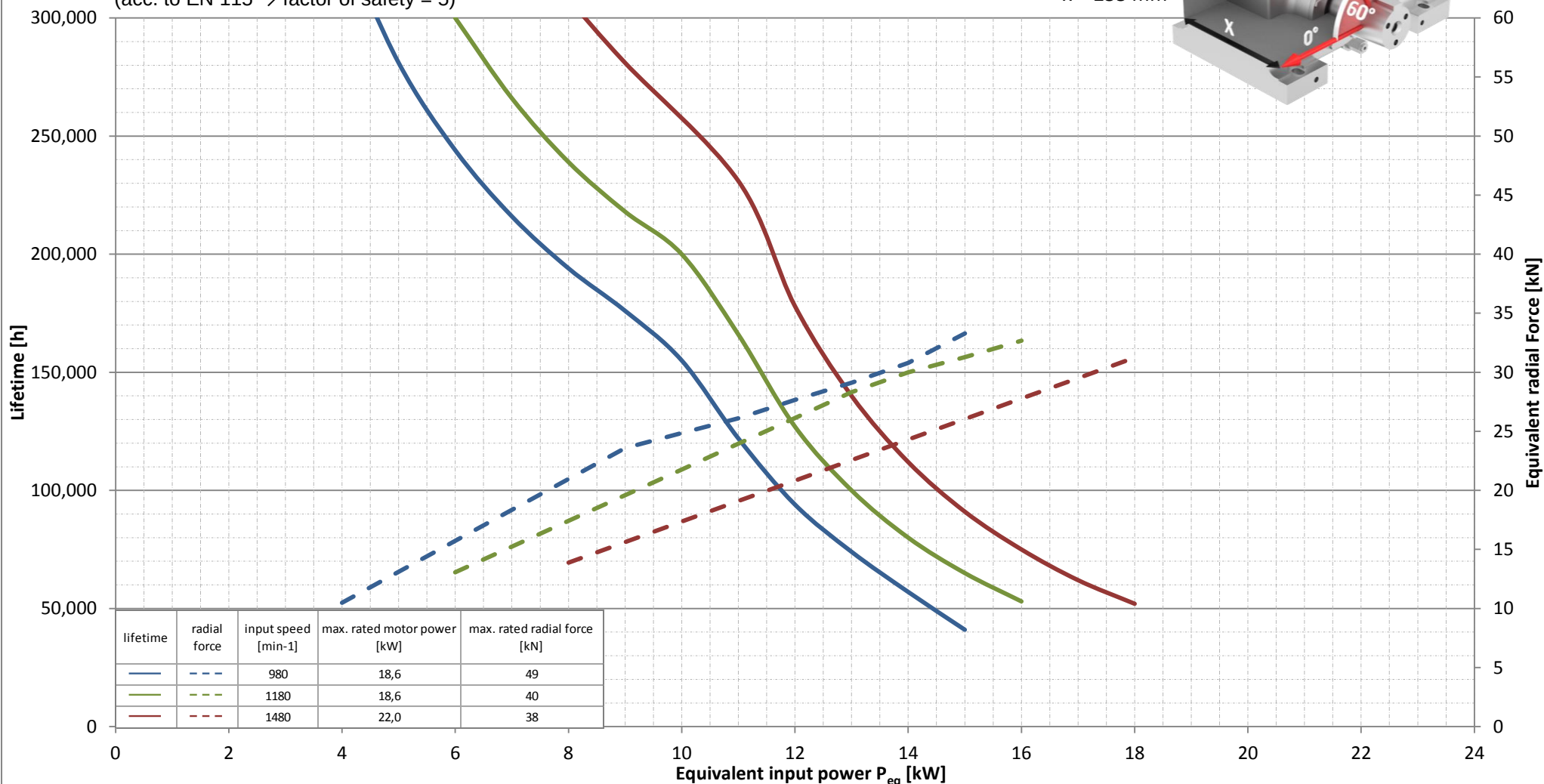
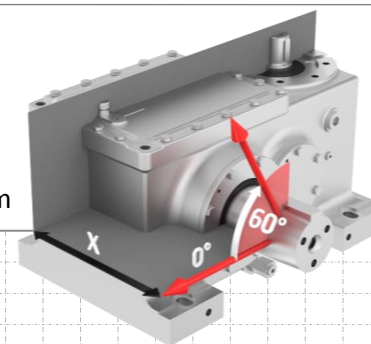


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FTSST 158.1 Escalator gear unit

Ratio 26.0
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 94%
Max. output torque / max. radial force 4.6 kNm / 50 kN
 (acc. to EN 115 → factor of safety = 5)

x = 255 mm

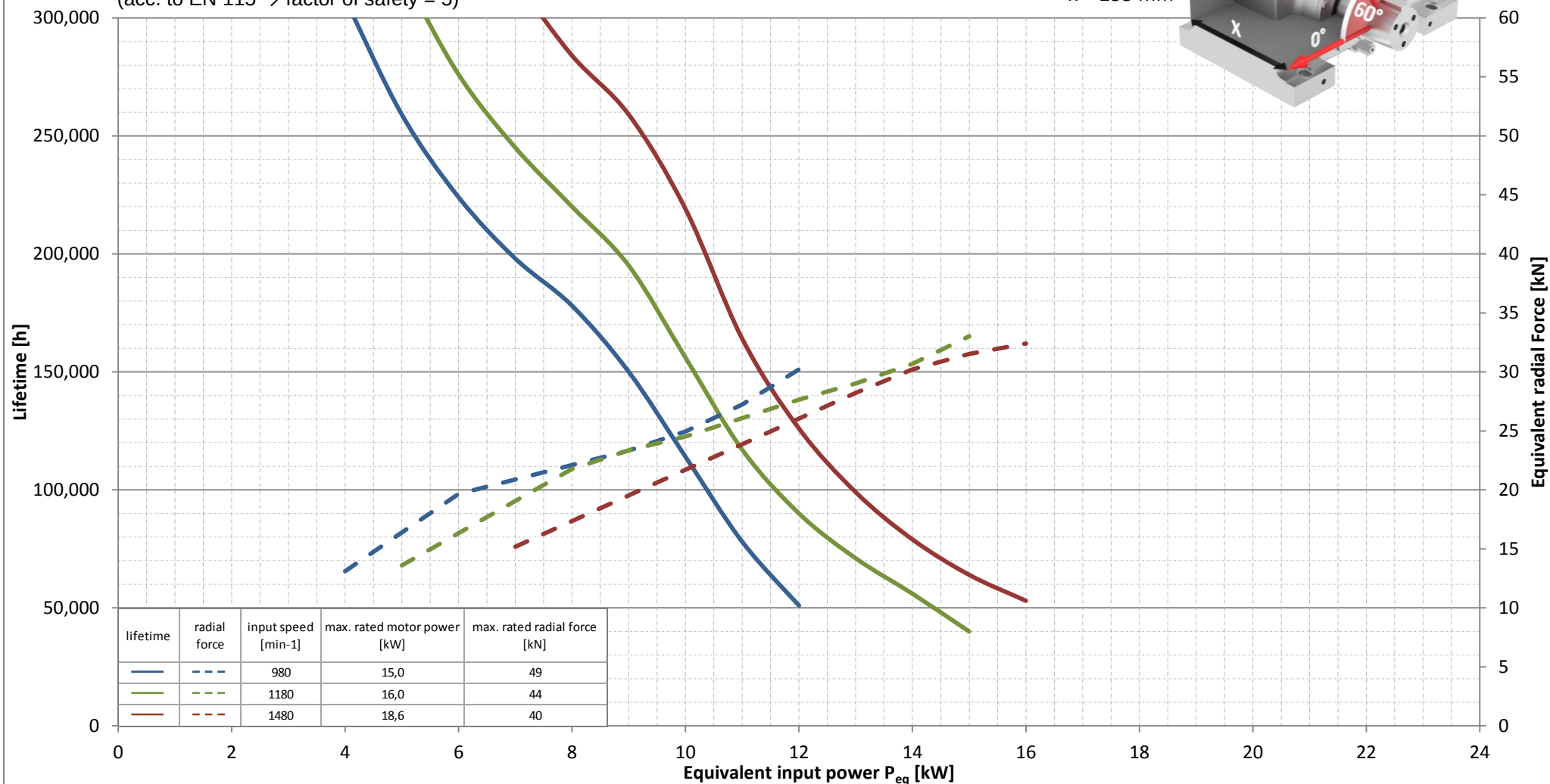
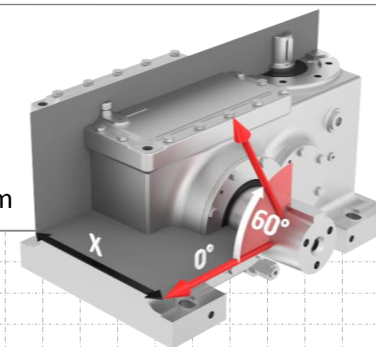


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FTSST 158.1 Escalator gear unit

Ratio
32.5
Lubrication
Polyglycol
Ambient temperature
40° C
Efficiency
≥ 94%
Max. output torque / max. radial force
4.6 kNm / 50 kN
(acc. to EN 115 → factor of safety = 5)

x = 255 mm

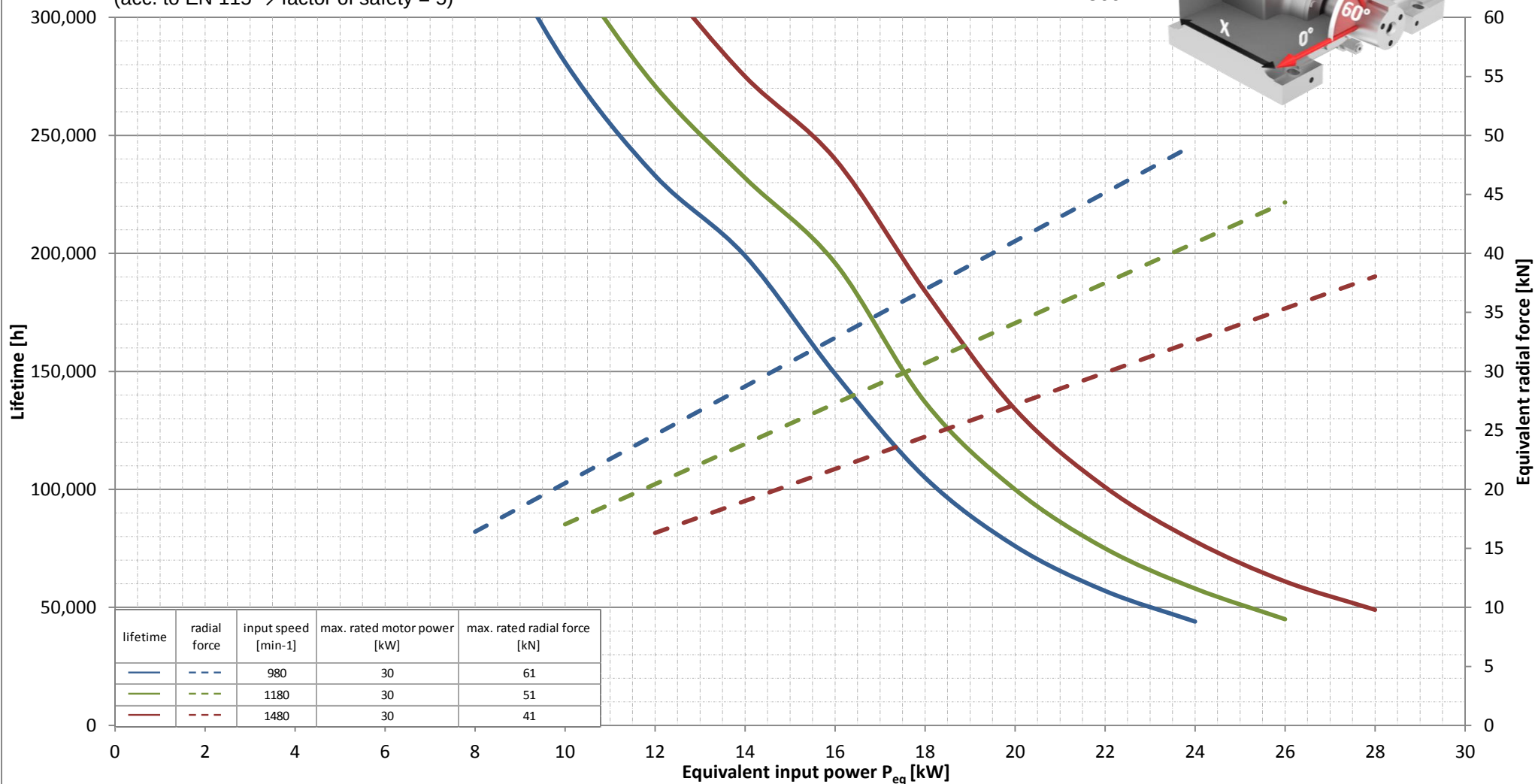
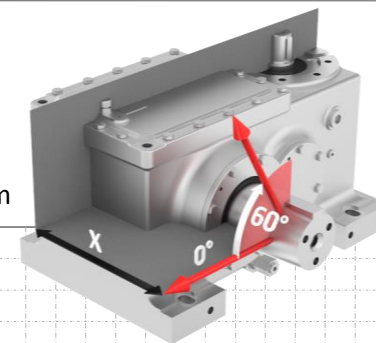


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FTSST 180.1 Escalator gear unit

Ratio 20.4
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 94%
Max. output torque / max. radial force 6.5 kNm / 71 kN
 (acc. to EN 115 → factor of safety = 5)

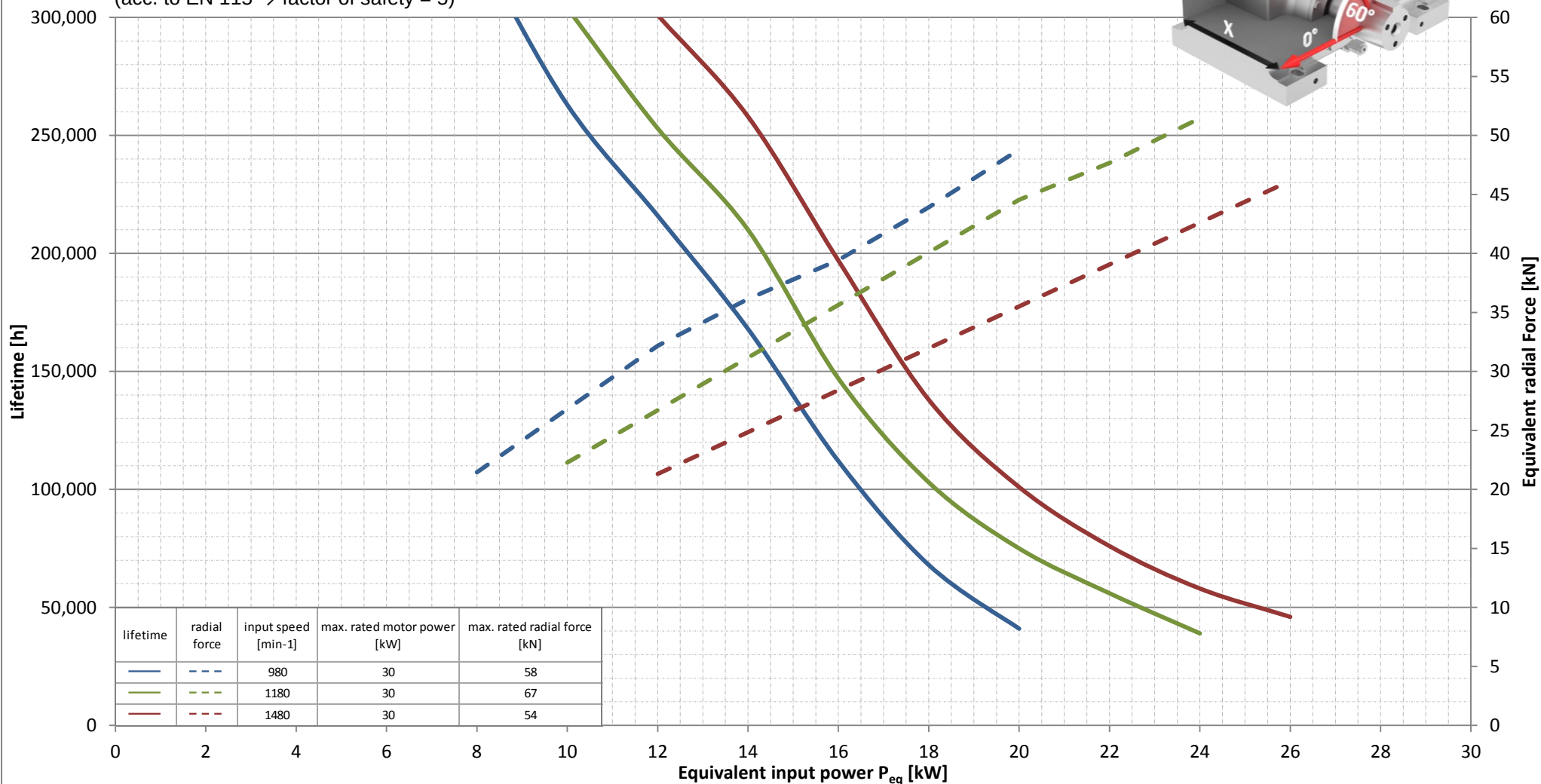
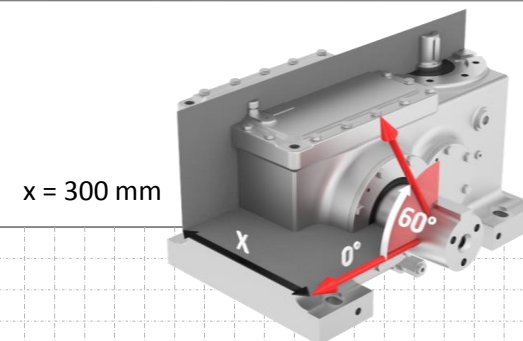
x = 300 mm



The calculations of machine elements are based on the standards and guidelines, which reflect the current state of the art. Worm toothing is calculated according to latest amendment of standard DIN 3996:2012.

FTSST 180.1 Escalator gear unit

Ratio 26.6
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 94%
Max. output torque / max. radial force 6.5 kNm / 71 kN
 (acc. to EN 115 → factor of safety = 5)

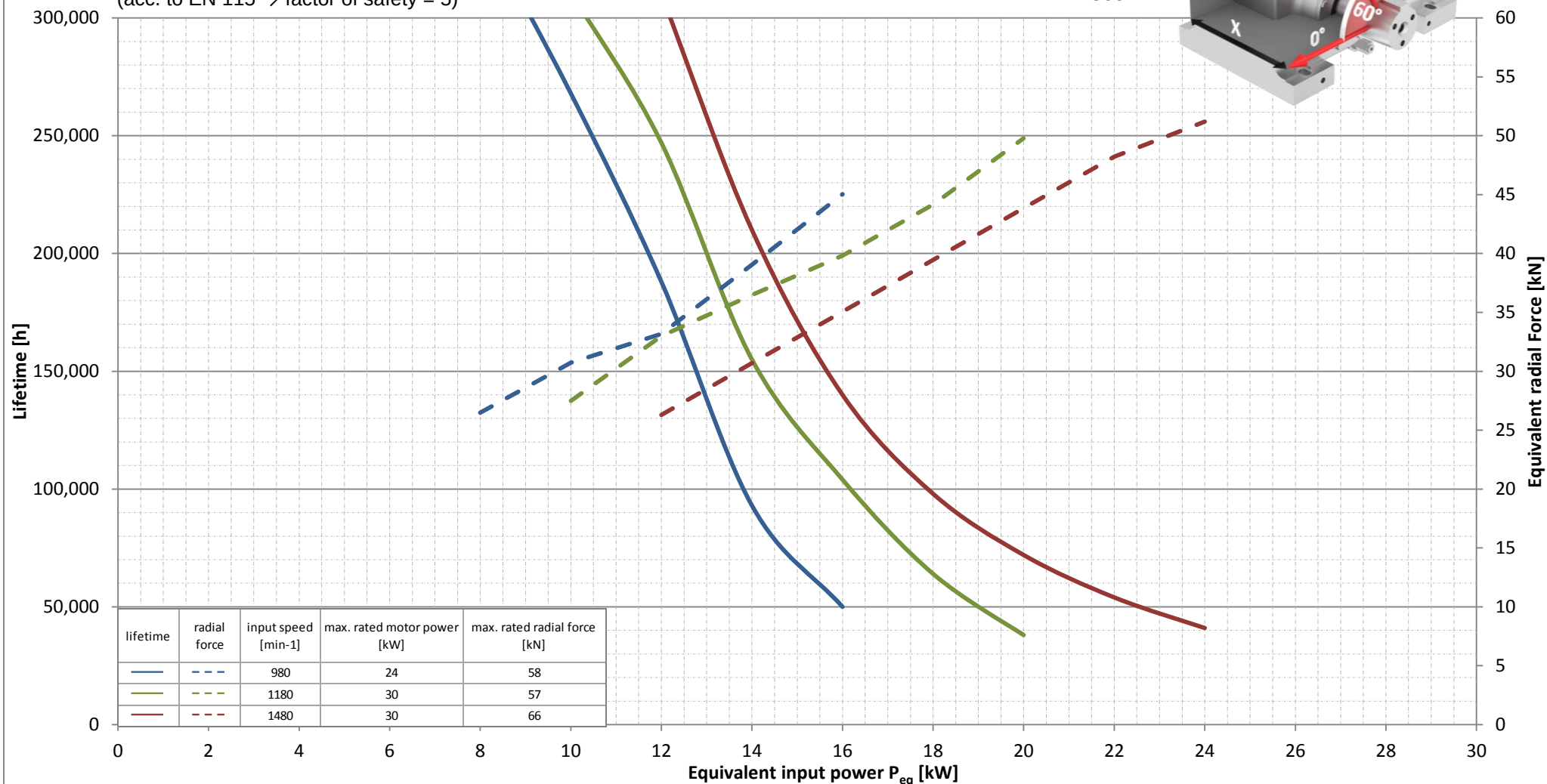
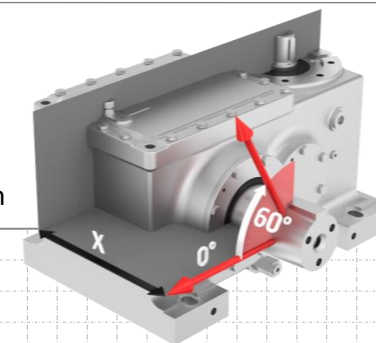


The calculations of machine elements are based on the standards and guidelines, which reflect the current state of the art. Worm toothing is calculated according to latest amendment of standard DIN 3996:2012.

FTSST 180.1 Escalator gear unit

Ratio 32.8
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 94%
Max. output torque / max. radial force 6.5 kNm / 71 kN
 (acc. to EN 115 → factor of safety = 5)

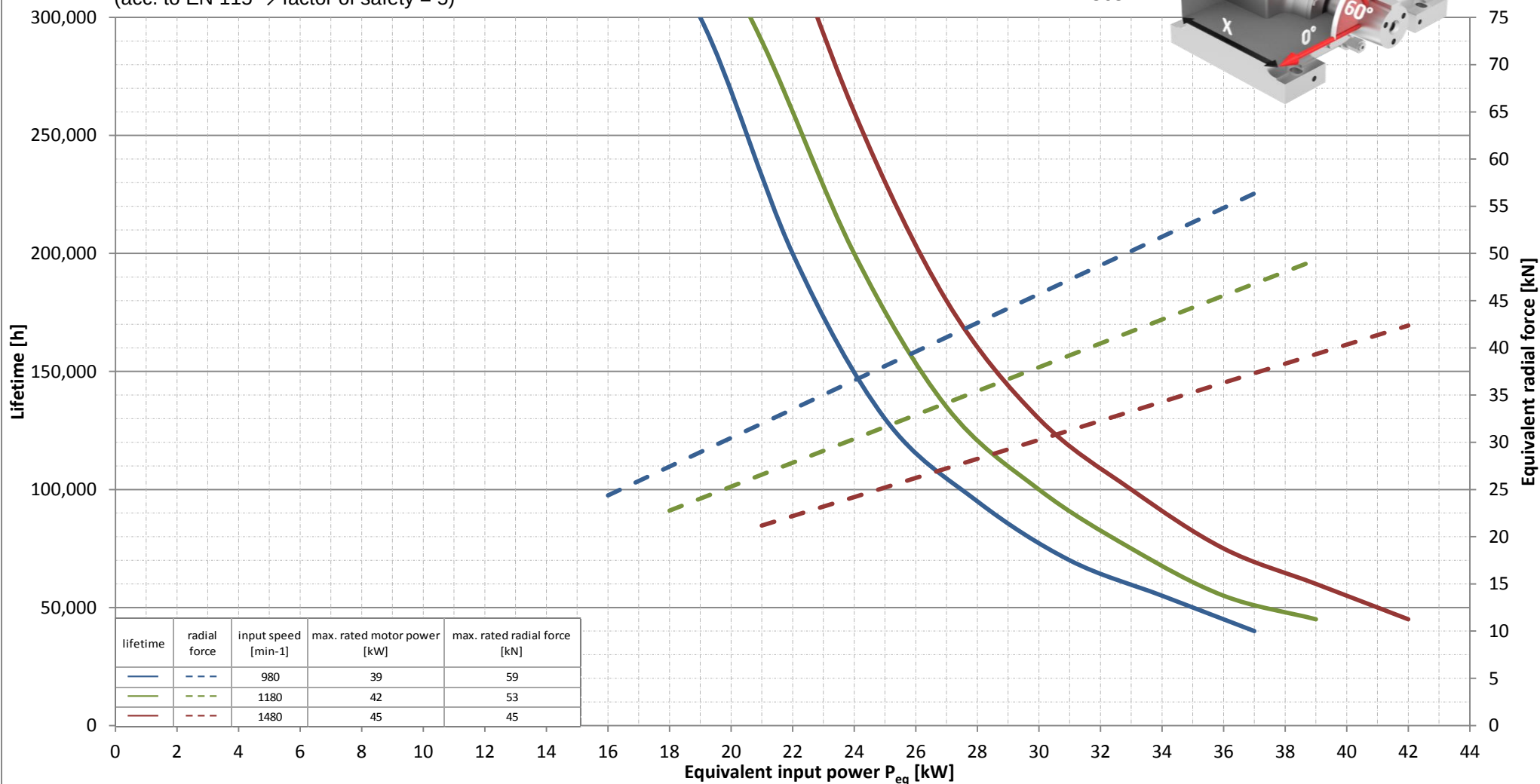
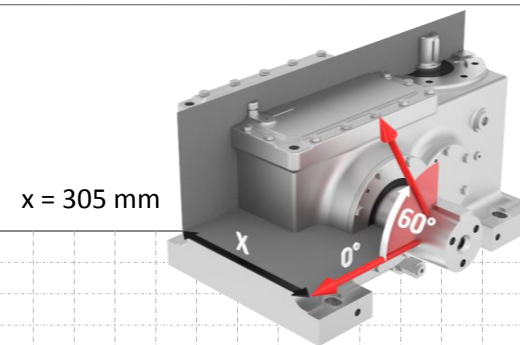
x = 300 mm



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FTSST 212.1 Escalator gear unit

Ratio 20.1
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 94%
Max. output torque / max. radial force 12.2 kNm / 100 kN
 (acc. to EN 115 → factor of safety = 5)

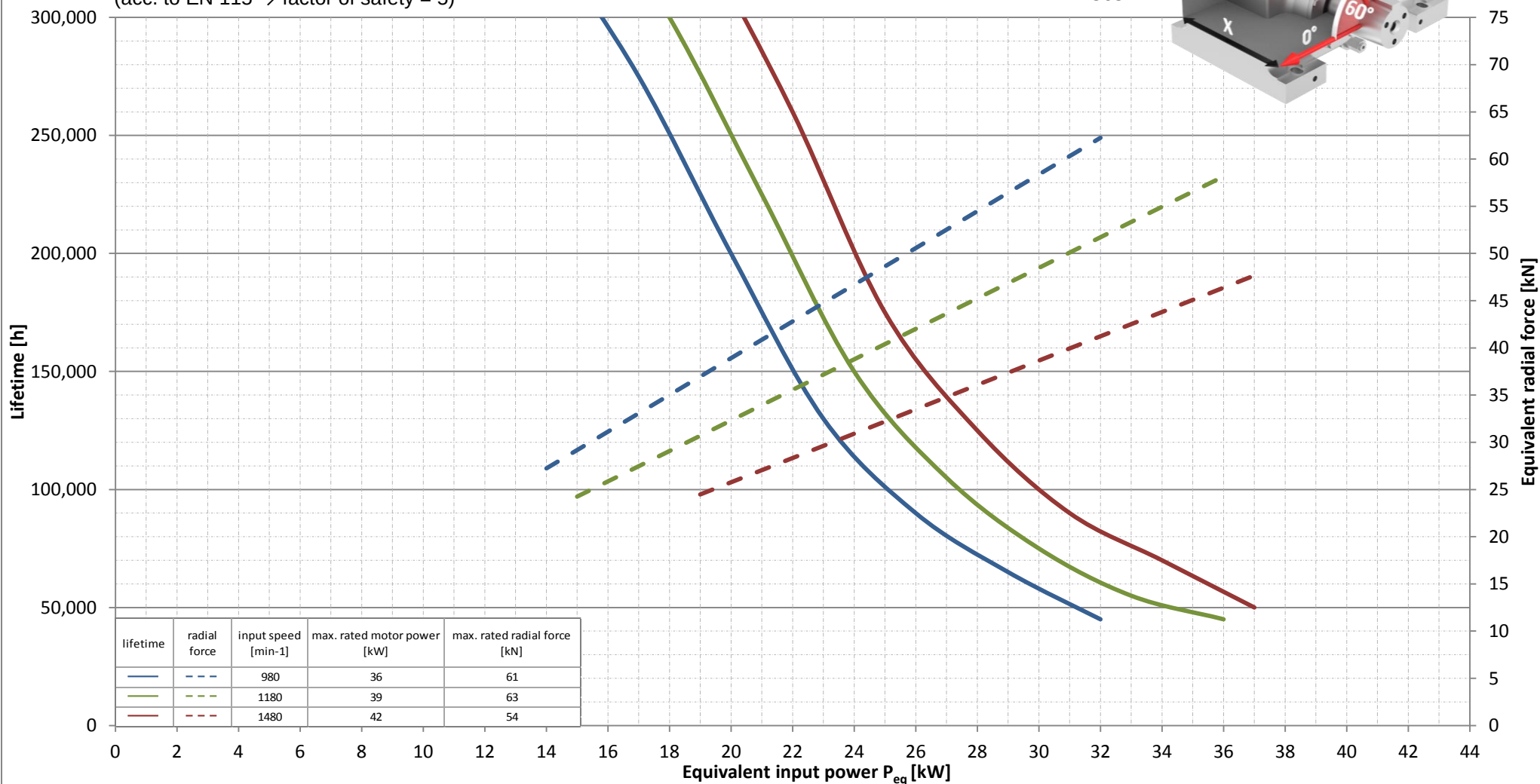
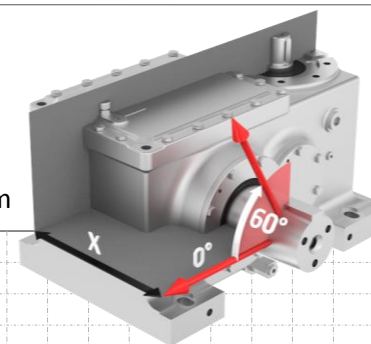


The calculations of machine elements are based on the standards and guidelines, which reflect the current state of the art. Worm toothing is calculated according to latest amendment of standard DIN 3996:2012.

FTSST 212.1 Escalator gear unit

Ratio 25.7
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 94%
Max. output torque / max. radial force 12.2 kNm / 100 kN
 (acc. to EN 115 → factor of safety = 5)

x = 305 mm

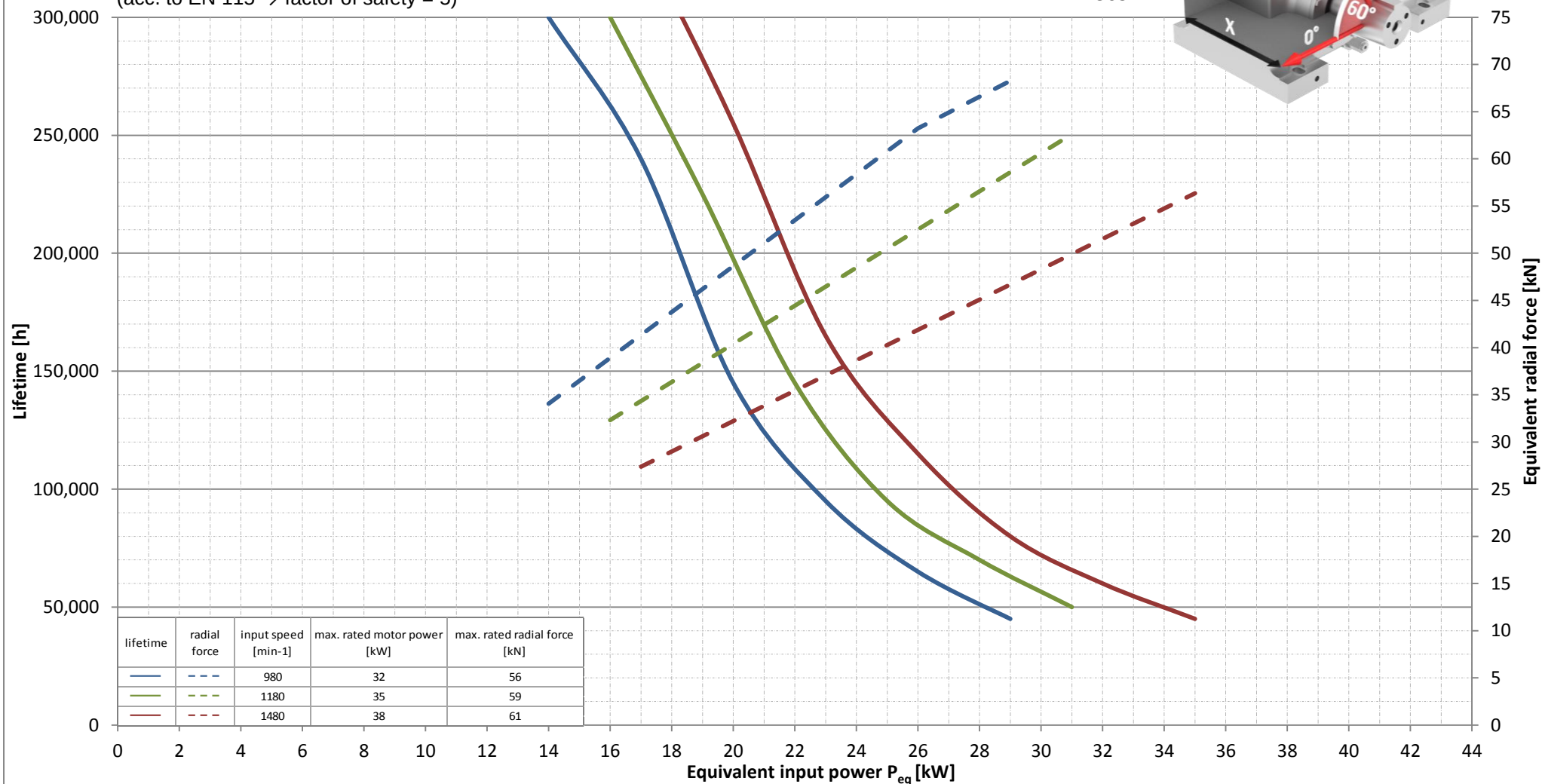
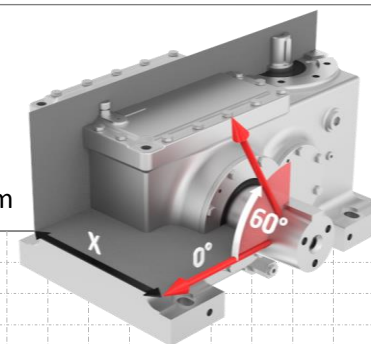


The calculations of machine elements are based on the standards and guidelines, which reflect the current state of the art. Worm toothing is calculated according to latest amendment of standard DIN 3996:2012.

FTSST 212.1 Escalator gear unit

Ratio 32.1
Lubrication Polyglycol
Ambient temperature 40° C
Efficiency ≥ 94%
Max. output torque / max. radial force 12.2 kNm / 100 kN
 (acc. to EN 115 → factor of safety = 5)

x = 305 mm



The calculations of machine elements are based on the standards and guidelines, which reflect the current state of the art. Worm toothing is calculated according to latest amendment of standard DIN 3996:2012.