ELEVATOR PERFORMANCE AND DUTY APPLICATION GUIDELINE

evolution 200/300

evolution 200/300 are mid- to heavy-duty elevators suitable for passenger and freight transportation in mid-rise buildings, within commercial and premium-class residential applications. According to the load, speed and travel height requirements, evolution 200/300 feature different sizes of the PMC 125, DAF 210 and DAF 270 machine families.

Performance based on ISO 25745-2				
Machine series	PMC 125 M, L, E	PMC 125 X	DAF 210	DAF 270
Load	450 - 1,600 kg	450 - 1,600 kg	630 - 1,000 kg	1,000 kg- 4,000 kg
Speed	1 m/s	1.6 m/s	2.0 m/s	< 2.0 m/s
Travel height	≤ 30 m	≤ 50 m	≤ 60m	≤ 100m (150m)
Average operation acc.	Category 3	Category 4	Category 5	
Max. starts per hour	120 s/h (40% duty cycle)	180 s/h (40% duty cycle)	240 s/h (50% duty cycle)	
Machine service life	> 20 years, 20,000 h	> 20 years, 20,000 h	> 15 years, 20,000 h	
Peak operation acc.	Category 4	Category 5	Category 6	
Max. starts per hour	180 s/h (30% duty cycle)	240 s/h (30% duty cycle)	240 s/h (50% duty cycle)	
Average travel during peak	2 floors (~ 5 m)	2 floors (~ 6 m)	3 floors (~ 12 m)	
N# peaks	3 peaks of 1.5 hours	3 peaks of 2 hours	3 peaks of 3 hours	







240 starts per hour for a maximum of 3 peaks
240 starts per hour during regular operation
120 starts per hour average operation acc. cat 5

25 starts per hour average operation acc. cat 3

240 starts per hour for a maximum of 3 peaks
180 starts per hour during regular operation
62.5 starts per hour average operation acc. cat 4

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Main specifications for elevators



Duty

Also known as usage rate of the elevator. This refers to how much traffic in a building is guided solely through the elevators. The suitable duty requirement for an elevator can be obtained from a traffic calculation that simulates the people flow in the building, and depends on its capacity and daily/yearly usage range.

Alongside the machine, the performance of some other components – like the controller, doors, car or sling – is crucial in defining the recommended scope of application for reliable operations.

Elevator duty can be classified into 4 categories:

Low-duty elevators

- Up to 150,000 starts/year
- Usage category 1 and 2, according to ISO 25745-2
- Designed for very-low-to-low-usage intensity (about 200 trips per day) and 1 m/s speed
- Typically found in residential buildings with up to 20 apartments, small offices or administrative buildings of ≤ 5 floors, small hotels and car parks

Mid-duty elevators

- Up to 400,000 starts/year
- Usage category 3 and 4, according to ISO 25745-2
- Designed for low-to-mid-usage intensity (about 500 trips per day) and up to 1.6 m/s speed
- Typically found in residential buildings of ≤ 50 apartments, medium-sized office or administrative buildings ≤ 10 floors, medium-sized hotels, shops, small hospitals, universities, etc.

Heavy-duty elevators

- Up to 600,000 starts/year
- Usage category 4 and 5, according to ISO 25745-2
- Designed for mid-to-high-usage intensity (about 1,000 trips per day) and speed up to 2.5 m/s
- Typically found in residential buildings > 50 apartments, large office or administrative buildings > 10 floors, large hotels, shopping centres, metro stations, airports or main train stations, etc.

Extra heavy-duty elevators

- Over 600,000 starts/year
- Usage category 6, according to ISO 25745-2
- Designed for high, very high or extremely high usage intensity (> 1,000 trips per day) and speeds ≤ 5.0 m/s
- Typically found in very large office or administrative buildings > 100 m, metro or train stations that are open 24/7

- Starts per hour (s/h)

This term refers to the number of times the elevator machine starts to move the cabin either up or down over a period of one hour. Relevelling starts are not considered. Specified as number of s/h e.g. 120, 180 or 240 s/h. The elevator specifications may require a minimum capability for elevator s/h to ensure robust equipment that is rated to perform during peak building traffic periods and to provide the expected service life and value.

Duty cycle or duty factor

The parameter defining the "run" time duration at rated load for a given period. This is mainly used for the calculation of a machine's heat emission and commonly expressed as a percentage or ratio. For an elevator system, a typical value is 40% "run" time for a one-hour period.

Design service life

The design service life of a product is the time, under defined duty and working conditions (environmental, mechanical and climatic), during which it performs within its specified parameters. Regular maintenance enables the design lifetime to be reached. To eliminate the risk of failures, modernisation measures are frequently required when the design lifetime is exceeded.



Peak traffic

A regular period of heavy traffic, especially at the beginning or end of a workday.

Please take into account other specific requirements that your project may have in relation to this matter and contact your TK Elevator sales representative for personalised advice.



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