

Subject: FAA strength rating conversions for Airbus fleet

Objective:

In this document, Airbus provides ratios to allow conversion for airports that only report pavement strength using the FAA pavement rating system (S/D/DT/DDT).

For pavements using FAA pavement rating publication, the Kenneth J. Debord's method is applied. This system allows estimating the allowable gross weight by multiplying the ratio corresponding to the aircraft gear type by the corresponding FAA rating.

*For any question, please contact airport operations department
airport.compatibility@airbus.com*

1 FLEET LANDING GEAR TYPES

Many airports in the United States list their runway pavement ratings according to the historic Federal Aviation Administration (FAA) system or to the present FAA configuration. The following table provides the correspondence between nomenclatures of 2 systems:

Aircraft	Gear Type Historic system	Gear Type New sys- tem
A318-100	D	D
A319-100	D	D
A320-100	D	D
A320-200	D	D
A321-100	D	D
A321-200	D	D
A319neo	D	D
A320neo	D	D
A321neo	D	D
A330-200	DT	2D
A330-200F	DT	2D
A330-300	DT	2D
A330-800	DT	2D
A330-900	DT	2D
A340-200	DT	2D/D1
A340-300	DT	2D/D1
A340-500	DT	2D/2D1
A340-500 HGW	DT	2D/2D1
A340-600	DT	2D/2D1
A340-600 HGW	DT	2D/2D1
A350-900	DT	2D
A350-1000	TDT	3D
A380-800	DT/TDT	2D/3D2

2 AIRBUS FLEET RATIOS

Based on Kenneth J. Debord's method, the Airbus fleet ratios are as follows.

Note: The following ratios are valid for the weight variant corresponding to the listed MRW (heaviest weight variant of each aircraft type).

For other weight variants, different ratios may apply and it is recommended to contact airport operations front desk (airport.compatibility@airbus.com) with the specific requested weight variant.

Aircraft	MRW (t)	Gear Type Historic system	Gear Type New sys- tem	Body type	D	DT	DDT
A318-100	68.4	D	D	NB	1.08	0.63	0.27
A319-100	76.9	D	D	NB	1.04	0.60	0.26
A320-100	68.4	D	D	NB	1.02	0.59	0.25
A320-200	78.4	D	D	NB	1.02	0.59	0.25
A321-100	89.4	D	D	NB	0.99	0.58	0.25
A321-200	93.9	D	D	NB	0.99	0.57	0.25
A319neo	75.9	D	D	NB	1.03	0.60	0.26
A320neo	79.4	D	D	NB	1.02	0.59	0.26
A321neo	97.4	D	D	NB	0.98	0.57	0.25
A330-200	242.9	DT	2D	WB	2.35	1.36	0.59
A330-200F	233.9	DT	2D	WB	2.31	1.34	0.58
A330-300	242.9	DT	2D	WB	2.31	1.34	0.58
A330-800	251.9	DT	2D	WB	2.30	1.33	0.57
A330-900	251.9	DT	2D	WB	2.30	1.33	0.57
A340-200	275.9	DT	2D/D1	WB	2.74	1.58	0.68
A340-300	277.4	DT	2D/D1	WB	2.73	1.58	0.68
A340-500	375.2	DT	2D/2D1	WB	3.29	1.90	0.82
A340-500 HGW	381.2	DT	2D/2D1	WB	3.36	1.94	0.84
A340-600	369.2	DT	2D/2D1	WB	3.27	1.88	0.81
A340-600 HGW	381.2	DT	2D/2D1	WB	3.35	1.93	0.83
A350-900	280.9	DT	2D	WB	2.42	1.40	0.60
A350-1000	316.9	TDT	3D	WB	2.99	1.72	0.74
A380-800	577	DT/TDT	2D/3D2	WB	5.37	3.10	1.34

3 EXAMPLE OF USE

3 examples are given in order to explain how to get the maximum allowable weight through the FAA ratio. For these 3 examples the following aircraft were chosen and the FAA ratios computed thanks to the above table.

Aircraft	MRW (t)	D	DT	DDT
A330-200	242.9	2.35	1.36	0.59
A380	577	5.37	3.10	1.34

Example1:

Pavement bearing strength: D200 DT400 DDT800

Aircraft: A330-200 (**DT**)

The gear type is among the rating published.

The maximum allowable weight will be: $400 \times 1.36 = 544 \text{ klbs} = 247 \text{ t}$ (>MRW).

Hence the A330 can operate at the MRW on this pavement.

Example2:

Pavement bearing strength: S75 DT400 DDT800

S is for single wheel per leg aircraft.

Aircraft: A380 (**TD/TDT**)

The gear type of the A380 is not among the rating published.

In that case, the maximum gross weight has to be computed for all the gear types (S not considered as the FAA ratios are not computed for S configuration):

- DT: $\text{Max_GW} = 400 \times 3.10 = 1240 \text{ klbs}$;
- DDT: $\text{Max_GW} = 800 \times 1.34 = 1072 \text{ klbs}$.

The highest gross weight has to be used. In our example: $\text{Max_GW} = 1240 \text{ klbs} = 562 \text{ t}$.

Hence the A380 can operate at 562 t on the pavement.

Example3:

Pavement bearing strength: DDT 500

Aircraft: A330-200 (**DT**)

The gear type of the A330 is not among the rating published.

The maximum allowable weight will be: $500 \times 0.59 = 295 \text{ klbs} = 227 \text{ t}$.

Hence the A330 can operate at 227 t on this pavement.