

20K vs. 23K Brake Linings

Should a fleet use 20K or 23K rated friction material on their axles?

Many fleets make decisions regarding the aftermarket friction material that's best for their application based on several misunderstandings. The result is that far too many fleets spec 23,000 lb. rated brake linings for applications that are ideally suited to a 20,000 lb. lining. So let's investigate this further.

The axles on every vehicle have a Gross Axle Weight Rating (GAWR). For most tractor or trailer axles, the GAWR will be 20,000 lbs. (20K) or 23,000 lbs. (23K). Some heavier axles may certify with a GAWR of 26,000 lbs. (26K). Transit busses GAWR are usually 28,660 lbs. Since most tractor and trailer over-the-highway applications have GAWR of 20K or 23K, let's focus our discussion on these.

In the US, the vast majority of axles (70% plus) have a GAWR of 20K. Most of the other applications have a GAWR of 23K, and a small percentage have a higher GAWR for very heavy applications. In Canada, most axles have 23K GAWR and require 23K friction materials.

New Trucks and Trailers:

Most axles on new trucks and trailers have a GAWR of 20K. They are supplied with a friction material that rates at 20K. Truck OEM's do extensive friction material approval testing and require a 10% compliance margin. 20K friction materials are designed to perform very well on axles with a 20K GAWR.

When you have a 20K GAWR axle and you use 20K rated friction material for aftermarket replacement, you will receive optimal results:

1. The friction has been engineered to pull more than enough torque (+10% compliance margin) for the application.
2. The correct friction level for the application will optimize/maximize your lining life, drum life and wheel end component life.
3. The correct friction level for the application will reduce the chance for brake noise and vibration.
4. 20K GAWR friction is generally less expensive than 23K GAWR friction material.

When you use a 23K GAWR rated friction material on a 20K axle you will not receive optimal results:

1. You will pull more torque than you need for the application. The higher friction does not make the material "more safe". With a 20K material on a 20K axle you have plenty of stopping ability.
2. Lining life, drum life and wheel end component life will tend to be shorter.
3. Your chances of brake noise and vibration are much higher with the higher friction material.
4. 23K friction generally is more expensive than 20K friction material.

In summary, Marathon provides both 20K and 23K rated friction materials, and can supply either for any application. However, best maintenance results are achieved when you match the rating of the friction material to the GAWR of the axle for any application.



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