

## Physical Strength Test of Medical Masks

► Medical masks are heavily used all over the world both by medical staff in hospitals during operations and contact with patients, and by the public who use the medical masks as face masks to avoid contamination during sickness. China and Japan are among some of the high volume markets.

To make sure that the medical masks are safe to use and contamination is avoided, testing the strength of the ties of the masks is a critical factor. If the ties break during use, contamination is more likely to happen. If the ties break when you apply them the mask can not be used and money have been wasted.

Testing the physical strength of the ties of the medical mask in accordance to standards such as GB / T19083-2010, will ensure that the ties can withstand the force used when applying the mask, and that the constant force that is added when the mask is in use will keep the mask intact.



### What is Required



#### LS Series Materials Testing Machines

The LS Series is well adapted in production environments within the medical device industry to perform tensile testing as well as compression, peel and flexural/bend testing, and it has been used for testing medical masks and similar medical devices across the world for decades. In combination with the NEXYGEN<sup>Plus</sup> materials testing software, user level authority setting, data traceability and built-in audit trail function makes the LS Series ideal for use in the medical device and pharmaceutical industries.

- 8 kHz data sampling
- Load cell:  $\pm 0.5\%$  from 1% to 100% of load cell value
- Speed:  $\pm 0.2\%$  of speed from 2 to 100% of max speed
- Capacities: 1 kN, 2.5 kN and 5 kN

#### Vice Grips

When performing tensile tests a wide selection of grips is available. To obtain the most accurate test results, best ergonomics and most effective test performance while still focusing on a cost-effective solution, we recommend choosing a set of grips that match your specific sample needs while keeping in mind that you might want to use the grips for testing other types of samples as well.

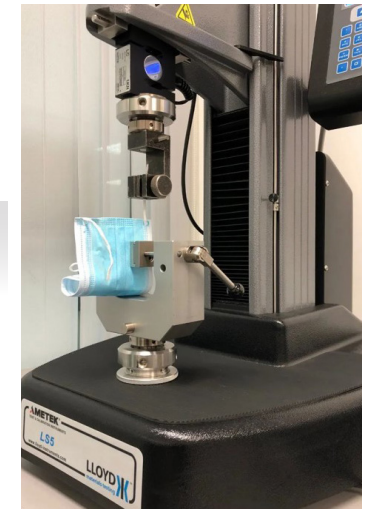


In this example we have used a small vice grip at the top to fix the tie of the medical mask and a larger vice grip at the bottom to fix the actual mask. As the bottom grip is fixed on the machine eye end, we recommend using a larger grip that can also be used for testing a multitude of other applications

Please contact your local AMETEK representative should you have any questions relating to the correct grips for your application.

#### Reference Standards

- GB / T19083-2010



Common fixing methods for mask ties include binding and heat sealing. The types of binding will vary depending on the number of connected stitches and the binding pressure.

To ensure that the ties are properly applied so they will not fall off during use, a physical strength test is performed. When testing, the breaking strength of the connection point between each tie of the mask and the mask body should not be less than 10N. For the physical strength test of medical protective masks, refer to the technical requirements of GB / T19083-2010.

To carry out the strength test, an LS Series materials tester is used. The LS Series test system from Lloyd Instruments has a reading-level force accuracy of 0.5%, a single-channel data

sampling rate of 8000 Hz, a beam throat depth of 180 mm, and an ultra-high stroke, providing a reliable data basis for testing medical face masks and additional medical protective textiles.

The NEXYGENPlus materials testing software uses a password protected security module allowing specific members of staff into the software to analyze the test results. Test results can easily be exported to Excel and Word via the batch report designer functionality for further analysis. Traceability of these results are paramount when testing medical devices such as face masks.

*For additional information go to our website, [www.ametektest.com](http://www.ametektest.com), where you can find product information and a video demonstration on how to perform strength tests on medical masks.*

