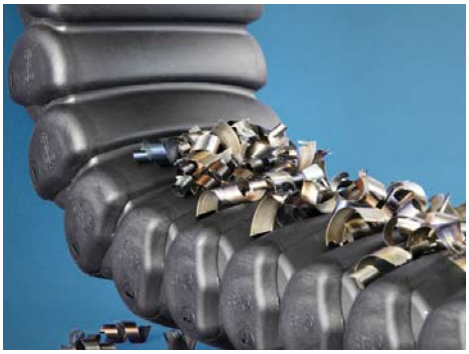
Protection for moving cables: igus RX tube proves itself in a test with real conditions

A laboratory test, carried out under hard conditions, for safely moving cables in the area of mechanical engineering shows tightness against chips

The plastic energy tube RX, from igus, successfully resists chips when put through hard operation. This test result concludes after a defined period of 100,000 double strokes and a steady feed of metal chips with different sizes. Comparisons highlight that statements about chip tightness of energy tubes can only be made on the basis of test that simulate real operating conditions.

If moving cables in the workspace of lathes, milling and sawing machines need to be protected, energy chains need to be chip tight inwardly and simultaneously guide the cables with low abrasion. For this purpose, igus has already developed its first foldable plastic energy tube R68. The latest energy tube RX now offers comprehensive protection against chips of any size.



Picture PM2913-01:
RX plastic energy tube from igus: Chips fall off at the smooth and convex outer contour at contact with the surface. (Source: igus GmbH)

A test is not equal to any other test

In order to be able to make statements about the tightness of energy tubes, the tubes need to be extensively tested. Here the IP classifications serve as an indicator. For over 10 years now igus continues to check energy tubes in the company-owned test laboratory in Cologne. There are several advantages of the igus test series: One being that the test cycles take place among real environmental conditions. To make statements about the real tightness of an energy tube, its subsequent use needs to be simulated precisely.

Simulation close to reality: 100,000 double strokes among impacts of chips

For this reason, igus has developed a standardized test to move energy tubes over 100,000 double strokes. At the same time, a defined load of chips of different sizes is periodically poured on the energy tube again and again. The principle is comparable to a washing machine drum. At the end of the cycles it is analysed how many grams of chips can get into interior space. The result was that only 0.23 grams of chips were in RX tube after 100,000 double strokes with a feed of 1,000 grams of metal chips. This is equal to 0.023 percent.

Picture PM2913-02:
Simulation test close to reality: the RX tube successfully protects moving cables against chips. (Source: igus GmbH)

The rounded outside profile lets chips fall off

Comparative tests with other manufacturers' energy chains show a much higher volume of chips in the inside of the tube. The reason for the better result of the RX tube is its rounded profile. On its smooth and convex outer contour the chips simply fall out of on contact with the surface. Apart from that, igus verifies that the chips are deposited in the stop system of the energy tube. This could lead to a change of the bending radius resulting in the tube not moveing safe and crashing against projecting edges at the worst. The RX tube offers best protection due to especially smooth contours and tight production tolerances - no chips got between the stoppers during the test. The results from igus show that tests among real conditions need to be performed to get reliable statements about the chip tightness of an energy tube in operation.

You can find the video about the test on the igus Youtube channel at:
http://youtu.be/1qr4EaFSKak

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About igus®:
The igus GmbH is a world`s leading manufacturer in the field of energy chain systems and polymer plain bearings. The family-run company is based in Cologne, represented in 29 countries and contracts 2,200 employees worldwide. In 2012 igus generated a turnover of 399 million Euro. igus operates the largest test laboratories and factories in its industry to offer customers innovative and tailor-made products and solutions within the shortest time.