

KÜSTER Automotive Door Systems –
Our compact window regulator
sets new standards for the future

Compact and powerful

In the Nineties, the benefits of the cable-operated window regulator superseded other systems; now KÜSTER launches its future generation of window regulators. The KÜSTER compact window regulator skilfully combines the financial and technical advantages of today's leading systems, the single- and double-rail drum and cable window regulator, and is suitable for both conventional and modular door

The history of the window regulator

- The Twenties saw the introduction of "closed" cars with a roof and doors with glass. With it came the birth of one of our core products, the window regulator.
- In the Fifties, engineers began to electrify this product, and electric power window regulators are now standard in the majority of cases.
- As well as being electric, our latest innovations also feature a wide range of additional functions which significantly reduce the risk of injury from jamming, for example, as well as providing enhanced convenience, such as central opening and closing.

concepts. The demands of automotive customers for enhanced user-friendliness, coupled with the growing requirements placed by OEMs on system suppliers such as ourselves, prompted us to combine and extend the benefits of tried-and-trusted systems. The criteria applied to the latest window regulator system are of course valid for all the systems used. However, the KÜSTER compact window regulator meets these requirements in a way which clearly sets it apart from conventional window regulators in its field. These are just a few examples of the many criteria imposed:

- Operational safety
- Assembly-friendliness
- Packaging space-efficiency
- Operational reliability
- Weight optimisation
- Output efficiency
- Cost-effectiveness



■ The compact window regulator needs fewer components than other comparable systems. This consequently means fewer potential sources of error, reduced testing, less noise potential, reduced assembly work during production, etc.

■ Optimised frictional conditions allow a smaller motor to be used in general. Smaller motors have less system inherent power, which ensures quieter, smoother operation.

■ By optimising the efficiency of the overall system, the identification of jams and thus all standard anti-trap systems are supported.

■ By means of smaller motors, combined with a reduced number of components and the option of aluminium construction, the compact window regulator offers substantial weight benefits.

■ Despite its high level of standardization, the compact window regulator has a high flexibility, for example in terms of structural design of the base plate, the glass fixing method, or the use of a traverse.

■ The compact window regulator entails minimum assembly costs. A single operator can position it with one hand and secure it with the other. Adjustment of the rail parallelism is not required. In this way, assembly times and susceptibility to errors are minimized.

■ The basic layout of the compact window regulator implies a positioning near the centre of the door. However, this restriction is more than compensated by the extra packaging space at the door ends, which can be used e.g. for speakers, door lock mechanisms etc.





Technical summary

Function		Compact window regulator compared with	
		2-rail regulator	1-rail regulator
Efficiency Operating range 80 N to 160 N		up to 20% better	comparable
Glass stability Tilt free play in X/Z		comparable	significantly better
Weight	Steel All 3 systems in steel	up to 10% lighter	up to 10% heavier
	Aluminium All 3 systems in aluminium	up to 20% lighter	up to 5% heavier
Assembly time for OEM Conventional door assembly		up to 15% shorter	comparable
Costs	Investment	up to 25% higher	up to 50% higher
	Unit cost	up to 20% lower	up to 30% higher
Number of components		up to 35% fewer	comparable
Motor dimensioning Measured output N		20% less	identical
Packaging requirements		comparable	higher
Packaging flexibility		limited	limited

Current double- and single-rail window regulators from standard vehicles were used for comparison purposes. As part of the analysis, distorting elements resulting e.g. from the ambient conditions of the various door concepts or specific customer requirements were eliminated.

KÜSTER

compact window regulator



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