

Balancing technology/ quality assurance/ testing technology/ automotive/ gearbox construction/fluid technology

More universally applicable and quicker to set up

RINGSPANN is optimising the deployment of its clamping fixtures for vertical balancing technology

The flange mandrels from RINGSPANN's BKDF series and their FUSR-type force-generating spring force actuators rank among the standard clamping systems for balancing rotationally symmetrical components in automotive, pump and gearbox construction. With the aim of significantly reducing the set-up costs and increasing the flexibility of users, the company has now revised the design of these internal clamping fixtures and optimised them for use on many different balancing machines. This is tantamount to simplifying the process and reducing investment costs.

Bad Homburg, October 2022. – Vertical balancing machines are part of the basic configuration of production-related quality assurance and testing technology at many well-known manufacturers of rotationally symmetrical components for use in automotive, gear and pump construction. In many cases, the precision clamping systems required for this come from RINGSPANN. Particularly for vertical balancing in series production, the ten sizes of taper collet flange mandrels from the BKDF series have established themselves as an industry standard. They are often used in combination with FUSR-series spring force actuators for machine-independent clamping force application. In order to further simplify the use of these internal clamping systems for users, RINGSPANN has now revised their design and improved it in one crucial area: the geometry of the seating body with which the flange mandrels can be docked onto their power clamping unit has been standardized and is now identical for the entire series, which now bears the new BKDW designation. For all balancing scenarios in which the flange mandrels are used in conjunction with a FUSR spring force actuator as the clamping unit, from now on only one spring force actuator will be required. What this means in practice is summarised by Christoph Schulz, Product Manager Clamping Fixtures at RINGSPANN: "Since all ten sizes of flange mandrels in our new BKDW series now work with the same type of spring force actuator - previously three different ones were necessary - both the set-up costs at the balancing machine and the acquisition costs for the clamping systems have been lowered. In addition, many of our customers operate balancing machines from different manufacturers. These can now all be equipped with one spring force actuator or intermediate flange and can access the same taper collet flange mandrels from the BKDW series. This overarching compatibility enables us to fulfil the wish of numerous users for a neutral and as universal as possible clamping system in vertical balancing technology."

High concentricity guaranteed

RINGSPANN's new BKDW series thus consists of ten sizes of taper collet flange mandrels with basically identical connectors. They are all characterised by an excellent true running accuracy of ≤ 0.01 mm. The most important distinguishing features include the clamping range of the taper collet, the change in its diameter as well as the maximum transmissible torque and the maximum actuating force. When used with the spring-loaded FUSR, the BKDW series covers a clamping range of 11.9 to 132 mm and offers flange mandrels with maximum actuating forces between 2,300 and 3,840 N, which can transmit torques of 11 to 25 Nm. The diameter expansion of the taper collet is a maximum of 1.2 mm. "With these parameters, our new BKDW series offers a technical bandwidth that fulfils many currently relevant requirements in automotive and vehicle construction, in gear and pump construction as well as in e-mobility for the vertical balancing of rotationally symmetrical, cylindrical series parts with an internal bore", emphasises Christoph Schulz.

Highly efficient combined solution

In many cases, RINGSPANN's internal clamping systems already form part of the basic OEM plant configuration of balancing machines. In industrial practice, however, the use of BKDF and BKDW flange mandrels can vary from user to user - depending on which machines determine what happens on site. If the vertical balancing machine or station has its own power clamping device, the taper collet flange mandrels from RINGSPANN can be connected directly via an intermediate flange. In all other cases, the combination of a BKDW flange mandrel and a FUSR spring force actuator (as a power clamping unit) forms a high-precision clamping system for efficient balancing - even at the high speeds common today. The manual operation of taper collet flange mandrels is now rather rare in balancing technology; but RINGSPANN still offers a selection of intermediate flanges for this purpose as well, which serve as connection adapters.

In principle, each flange mandrel from the BKDW series consists of a taper collet with a draw bolt and a - now universal - seating body with which it is connected to the spring force actuator FUSR or to the intermediate flange of the balancing machine. It is set into action via the draw bolt, which is connected to the power clamping device (of the spring force actuator or the machine). Christoph Schulz explains: "The draw bolt is guided through the flange seating body (base body), which has a pin or plate for the circumferential positioning of the taper collet. This enables the highest reproducibility of balancing results to be achieved." During clamping, the taper collet is pulled over the taper of the seating body and expands radially. In this way, the workpiece is securely centred, pressed against the backstop surface and aligned flat. Upon request, RINGSPANN also supplies the functional unit of a taper collet and draw bolt with pre-centring for use on fully automated systems with integrated handling systems.

All taper collet flange mandrels of the BKDW series are suitable for balancing both thin-walled and solid workpieces. The maximum insertion depths range from 31.9 to 147.55 mm. For the calibration of the clamping system consisting of the FUSR spring force actuator (or intermediate flange) and flange mandrel BKDW, the user receives an optional control balancing ring from RINGSPANN - designed for the respective clamping diameter. *ms*

974 words with 6,252 characters (with spaces)

Author: Mika Strandthaler, freelance specialist journalist, Darmstadt

Note for editorial staff: Text and images available at www.pr-box.de!

Captions (5 pictures)

Figure 1: The clamping system BKDW / FUSR from RINGSPANN in a vertical balancing machine from Schenck RoTec, which is part of an automated production line. (Image: Schenck RoTec)

Figure 2: The new clamping system series BKDW from RINGSPANN fulfills many requirements that exist in automobile and vehicle construction, in gear and pump construction as well as in e-mobility for the vertical balancing of rotationally symmetrical, cylindrical series parts with internal bores. (Image: Ringspann)

Figure 3: Christoph Schulz, Product Manager Clamping Fixtures at RINGSPANN: "With the overarching compatibility of our new BKDF taper collet flange mandrels, we are fulfilling the wish of many balancing technicians for an internal clamping system that is as universal as possible and machine independent". (Image: Ringspann)

Figure 4: Now that all ten flange mandrels of the new RINGSPANN BKDW clamping tool series work with the same spring force actuators (image), the set-up effort on the balancing machine and the acquisition costs for the clamping systems are reduced. (Bild: Ringspann)

Figure 5: In principle, each flange mandrel from the BKDW series consists of a taper collet with a draw bolt and a - now universal - seating body with which it is connected to the spring force actuator FUSR or to the intermediate flange. (Bild: Ringspann)

Add-ons:

Video – Directlink to [RINGSPANN-Productanimations](#).

Provider:

RINGSPANN GmbH
Pia Katzenmeier
Schaberweg 30 - 34
D-61348 Bad Homburg
Tel.: 0049 (0) 61 72/ 275 118
Fax: 0049 (0) 61 72/ 275 61 18
Email: info@ringspann.de/ pia.katzenmeier@ringspann.de
Website: www.ringspann.de/ www.ringspann.com

Press agency:

Graf & Creative PR
Robert-Bosch-Str. 7
D-64293 Darmstadt
Tel.: 0049 (0) 61 51 / 42 87 91-0
Fax: 0049 (0) 61 51 / 42 87 91-9
Email: info@guc.biz
Website: www.pr-box.de