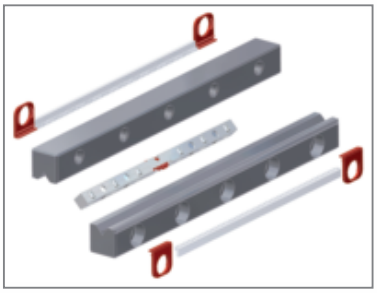
SCHNEEBERGER
LINEAR TECHNOLOGY

FORMULA-S: Process stability through the elimination of cage creep

Raising productivity to new heights

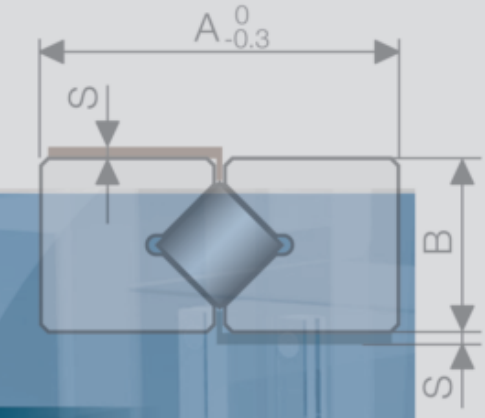
In cross roller linear bearings, it is possible for the cage to move freely along the longitudinal axis allowing it to become off-centre. This problem, known as “cage creep”, can reduce the effectiveness of your particular application, if for example the cage has to be continually centred. This raises cycle times and reduces production output. In order to prevent cage creeping – above all in highly dynamic applications – linear bearings must incorporate intelligent design.



The cage control system FORMULA-S completely fulfils these requirements in terms of productivity and economic efficiency. It is extremely robust, easy to assemble and consists of only a few components.

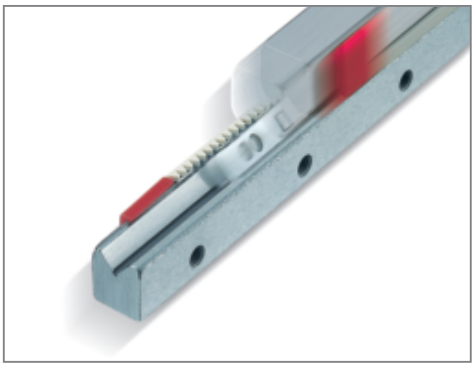
FORMULA-S is based on the dimensions and load ratings of our proven RN and RNG ranges. Its clever design means it is easy to incorporate into your existing construction. Above all: FORMULA-S works in any mounting position, regardless of the bearing’s preload.

In addition, the component parts of FORMULA-S are easy to assemble and replace. Bearings can be machined without affecting the cage control system. The close intermeshing of its key components and the choice of materials guarantee long life and make it possible to employ FORMULA-S in vacuum applications.



Unique running characteristics

The extremely smooth running characteristics of the linear bearing are not affected. This allows you to combine the smooth running characteristics of a classic cross roller linear bearing with the dynamic possibilities of a cage control system.

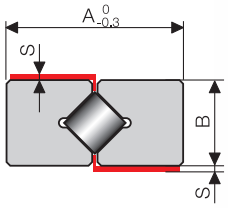


Influencing factors that cause cage creep, where the use of FORMULA-S is recommended

- High accelerations and speeds
- Frequent centring cycles
- Vertical installation
- Uneven load distribution
- Excessive cage travel
- Different heat expansion coefficients
- Insufficient stiffness and precision of surrounding construction elements
- Where installation to the recommended specifications cannot be made

Technical data

Max. acceleration	300 m/s² (30 g)
Max. speed	1 m/s
Vacuum capability	down to 10^{-7} mbar



Adapting FORMULA-S to existing structure

When installing FORMULA-S, the thickness (S) of the red end plate should be taken into consideration. The remaining dimensions correspond to SCHNEEBERGER bearings type RN und RNG.

FORMULA-S rail

Type	Series	Standard rail length (L)		Identification	A	B	S	S min.
RN	**3**	50-300 mm	In 25-mm-increments	-KS	18	8	0.85	1.2
RN	**4**	80-400 mm	In 40-mm-increments	-KS	22	11	0.85	1.2
RN	**6**	100-500 mm	In 50-mm-increments	-KS	31	15	0.85	1.2
RNG	**4**	50-300 mm	In 25-mm-increments	-KS	19	9	0.85	1.2
RNG	**6**	100-400 mm	In 50-mm-increments	-KS	25	12	0.85	1.2
RNG	**9**	100-500 mm	In 50-mm-increments	-KS	33	16	0.85	1.2

FORMULA-S Cage

Type	Series
KBS	**3**
KBS	**4**
KBS	**6**
KBS	**9**

Ordering examples

Cage: KBS 4 x 10 (10 = Number of rollers. For technical details, see linear bearings catalogue)
Rails: RNG 4- .... -KS

SCHNEEBERGER – «Essentials for the Best!»

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