

**High-performance
live centres
with spring-loaded centrepoint**

**Design line LR
Axial pressure indication by coloured rings**

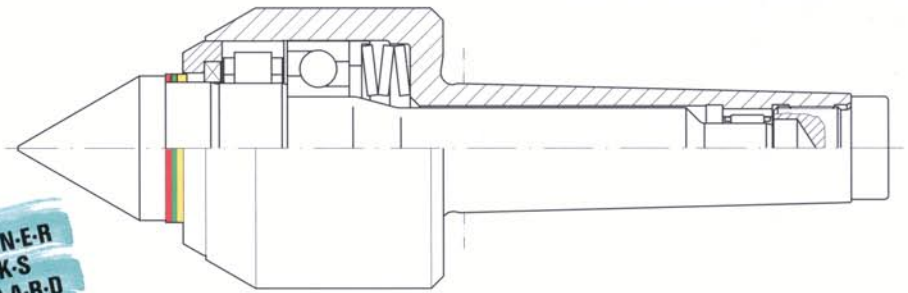
**Design line LD
With expansion compensation**



The principle

The spring loading compensates for workpiece thermal expansion and variation of workpiece length. The bearings of the live centre and the machine are thus protected.

**B-R-U-C-K-N-E-R
W-O-R-K-S
S-T-A-N-D-A-R-D**



Design line LR

Spring pressure is indicated by yellow, green and red coloured rings. Larger range of spring movement than line LD.

Applications

- As a tailstock centre for face drivers. The pressure indication by coloured rings allows quick adjustment and checking of the tailstock force, chosen according to workpiece form and stability.
- On multi-spindle machines or CNC-lathes with two tool turrets. At a fixed positioning the range of spring movement compensates for different centre depths and length tolerances on the workpiece.

Design line LD

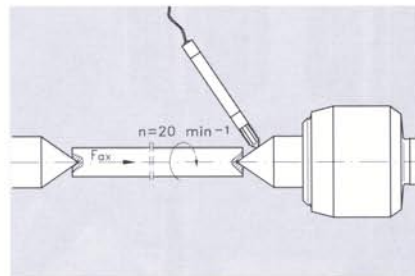
With expansion compensation, without pressure indication. Smaller range of spring movement than line LR.

Applications

- Whenever thermal expansion occurs when machining longer or slender shafts. The range of spring movement compensates for this expansion and prevents shaft deflection.

Common characteristics (line LR and line LD)

- The centres have been designed for high radial and axial loads and meet the highest quality demands.
- The high-precision bearings are arranged in the head of the housing and the taper end. The bearing seats of housing and centrepoin are matched to the bearings and ground to exacting tolerances.
- The bearing of this spring-loaded design is suitable for higher speeds.
- High running accuracy. Every high-performance centre is tested under axial load and the measured accuracy of running is guaranteed by a test report.

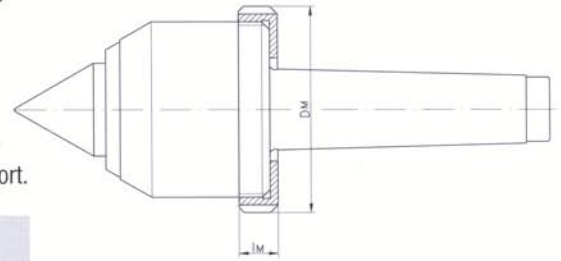


- The housing is hardened. The centrepoin is of alloyed, fully hardened abrasionproof tool steel.
- The rotary shaft seal protects the bearing from dirt and coolant.
- Maintenance-free through permanent lubrication.

Special designs on request.

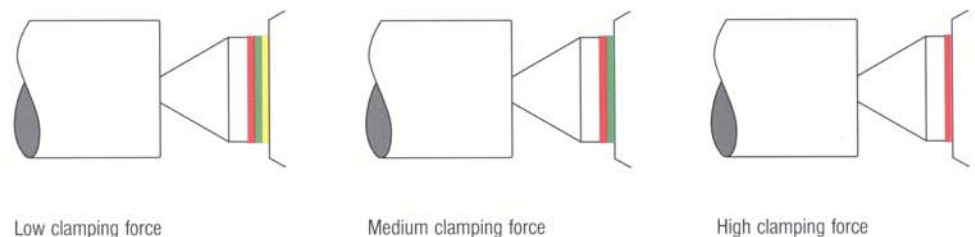
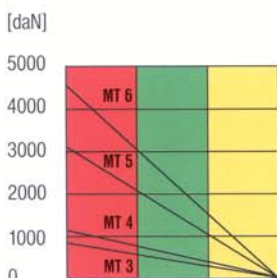
Design A with draw-off thread and draw-off nut

All sizes of the design lines LR and LD are also available with draw-off thread and draw-off nut – simply add a capital **A** to the ID. No.
Order example for type LRS MT4:
ID. No.: 700S 068004**A**



ID. No.	For centre with housing diameter	Draw-off nut		
		Dimensions (mm)		
		IM	DM	Thread
M45L	45 mm	9	55	M 45 x 1,5
M55L	55 mm	10	68	M 55 x 1,5
M68L	68 mm	15	80	M 68 x 1,5
M92L	92 mm	18	110	M 92 x 1,5
M127L	127 mm	18	145	M 127 x 1,5

Example of function for design line LR



Type LRS

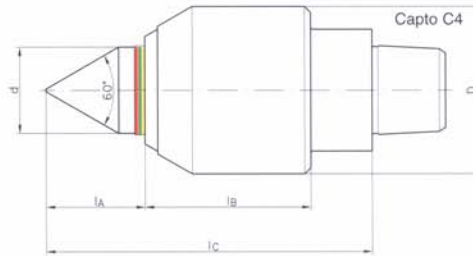
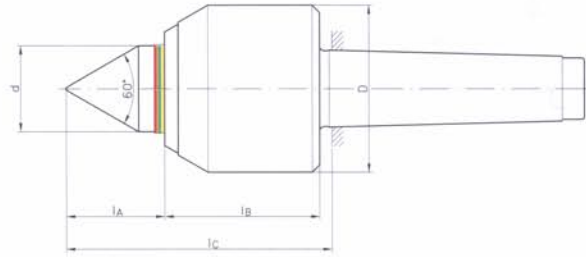
With spring, pressure indication by yellow, green and red coloured rings 60-degree centrepoint.

Eccentricity

max. 0.005 mm, with test report.
High-precision design with 0.002 mm on request.

Applications

- For turning, CNC-turning, turning of a workpiece between live centre and face driver, on multi-spindle machines and CNC lathes with two tool turrets.
See page 2 for explanations about line LR.



Type LRS ID. No.	Morse taper	max. daN ¹⁾	max. axial force daN ¹⁾	Spring travel	max. r.p.m.	Load graph radial/axial	Dimensions (mm)				
							d	D	l _A	l _B	l _C
700S 055003	3	720	760	2,7	5000	S3/A3	25	55	28	51	84
700S 068004	4	1200	1100	4,2	4000	S4/A4	35	68	40	63	108
700S 092005	5	2000	2000	5,4	3500	S5/A5	50	92	57	82	145
700S 127006	6	4800	3500	8,4	2300	S6/A6	70	127	74	109	190
700S 055C04	Capto C4	720	760	2,7	5000	S3.1/A3	25	55	28	54	103

¹⁾ Max. workpiece weight and max. axial force at 100 r.p.m. and 2000 working hours of bearing service life. Design A available with draw-off nut.

Type LRV

With spring, pressure indication by yellow, green and red coloured rings, extended 60-degree/40-degree centrepoint.

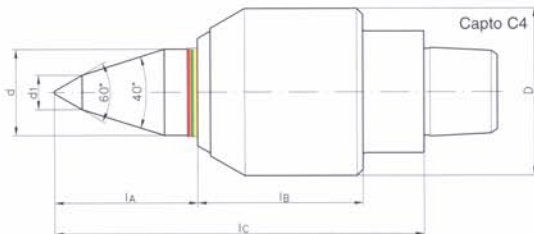
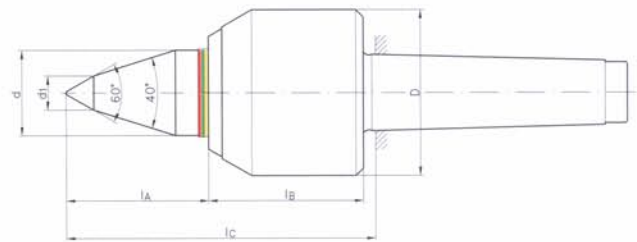
Eccentricity

max. 0.005 mm, with test report.

Applications

Like type LRS.

- The extended slim centrepoint enables tools to work unhindered.
See page 2 for explanations about line LR.



Type LRV ID. No.	Morse taper	max. daN ¹⁾	max. axial force daN ¹⁾	Spring travel	max. r.p.m.	Load graph radial/axial	Dimensions (mm)					
							d	d ₁	D	l _A	l _B	l _C
700V 055003	3	550	760	2,7	5000	V3/A3	25	12	55	37	51	93
700V 068004	4	900	1100	4,2	4000	V4/A4	35	14	68	49	63	117
700V 092005	5	1400	2000	5,4	3500	V5/A5	50	18	92	69	82	157
700V 055C04	Capto C4	550	760	2,7	5000	V3.1/A3	25	12	55	37	54	112

¹⁾ Max. workpiece weight and max. axial force at 100 r.p.m. and 2000 working hours of bearing service life. Design A available with draw-off nut.

Type LDS

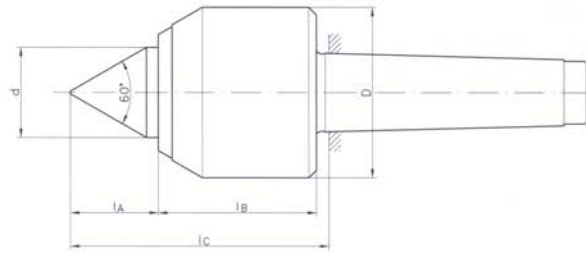
With expansion compensation, without pressure indication, 60-degree centrepoint.

Eccentricity

max. 0.005 mm, with test report.
High-precision design with 0.002 mm on request.

Applications

- For turning, CNC-turning, in precision design for cylindrical grinding.
See page 2 for explanations about line LD.



Type LDS ID. No.	Morse taper	max. daN ¹⁾	max. axial-force daN ¹⁾	Spring travel	max. r.p.m.	Load graph radial/axial	Dimensions (mm)				
							d	D	l _A	l _B	l _C
710S 045002	2	320	600	0,85	5500	S 2 / A 2	19	45	24	45	72
710S 055003	3	720	760	0,95	5000	S 3 / A 3	26	55	26	51	82
710S 068004	4	1200	1100	1,4	4000	S 4 / A 4	36	68	35	63	103
710S 092005	5	2000	2000	1,8	3500	S 5 / A 5	51	92	47	82	135
710S 127006	6	4800	3500	2,8	2300	S 6 / A 6	71	127	65	109	181

¹⁾ Max. workpiece weight and max. axial force at **100 r.p.m.** and 2000 working hours of bearing service life. Design A available with draw-off nut.

Type LDV

With expansion compensation, without pressure indication, extended 60-degree/40-degree centrepoint.

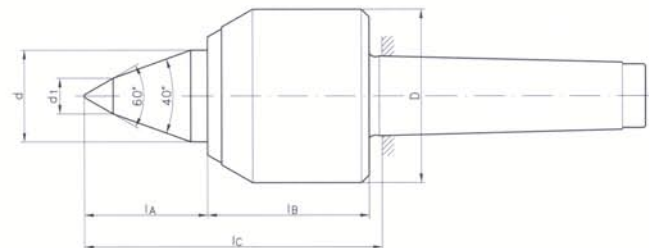
Eccentricity

max. 0.005 mm, with test report.

Applications

Like type LDS.

- The extended slim centrepoint enables tools to work unhindered.
See page 2 for explanations about line LD.



Type LDV ID. No.	Morse taper	max. daN ¹⁾	max. axial-force daN ¹⁾	Spring travel	max. r.p.m.	Load graph radial/axial	Dimensions (mm)					
							d	d ₁	D	l _A	l _B	l _C
710V 045002	2	280	600	0,85	5500	V 2 / A 2	19	9	45	24	45	72
710V 055003	3	550	760	0,95	5000	V 3 / A 3	26	12	55	33	51	89
710V 068004	4	900	1100	1,4	4000	V 4 / A 4	36	14	68	48	63	116
710V 092005	5	1400	2000	1,8	3500	V 5 / A 5	51	17	92	64	82	151

¹⁾ Max. workpiece weight and max. axial force at **100 r.p.m.** and 2000 working hours of bearing service life. Design A available with draw-off nut.

Type LDA

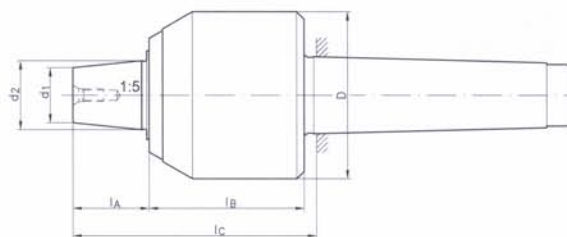
With expansion compensation,
without pressure indication,
Stub-tapered centrepoint fitting the
form KA tapered caps.

Eccentricity

max. 0.005 mm, with test report.

Applications

- For workpieces with larger bores.
Holding and extraction screws are
included with these centres.



Type LDA ID. No.	Morse- taper	max. daN ¹⁾	max. axial- force daN ¹⁾	Spring travel	max. r.p.m.	Load graph radial/axial	Dimensions (mm)					
							d ₁	d ₂	D	l _A	l _B	l _C
710A 045002	2	320	600	0,85	5500	S 2 / A 2	14,3	18	45	22	45	70
710A 055003	3	720	760	0,95	5000	S 3 / A 3	18,4	23	55	26	51	82
710A 068004	4	1200	1100	1,4	4000	S 4 / A 4	22,3	28	68	32	63	100
710A 092005	5	2000	2000	1,8	3500	S 5 / A 5	30,4	38	92	42	82	129
710A 127006	6	4800	3500	2,8	2300	S 6 / A 6	37,6	48	127	58	109	173

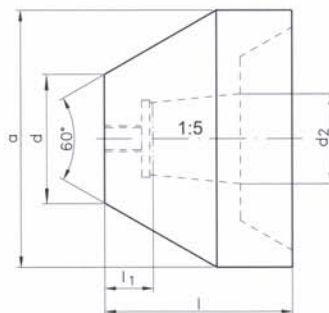
¹⁾ Max. workpiece weight and max. axial force at **100 r.p.m.** and 2000 working hours of bearing service life. Design A available with draw-off nut.

Form KA

Interchangeable tapered caps

For every size of type LDA two hardened
tapered caps of different diameters
are available. Special designs on request.

The measure d₂ of the tapered cap is
identical with the measure d₂ of the
basic body. The extraction screw makes
cap change easier.



Basic body Type LDA ID. No.	Form KA		Dimensions (mm)				
	ID. No.	Sandvik ID. No.	a	d	d ₂	l	l ₁
710A 045002	7KA 2.056	90-AK / SA-2-65116	56	15	18	40	9,5
	7KA 2.090	90-AG / SA-2-65122	90	49	18	40	9,5
710A 055003	7KA 3.068	90-AK / SA-3-65117	68	18	23	48	10,5
	7KA 3.110	90-AG / SA-3-65123	110	60	23	48	10,5
710A 068004	7KA 4.080	90-AK / SA-4-65118	80	20	28	58	14
	7KA 4.130	90-AG / SA-4-65124	130	70	28	58	14
710A 092005	7KA 5.110	90-AK / SA-5-65119	110	30	38	74	18
	7KA 5.175	90-AG / SA-5-65125	175	95	38	74	18
710A 127006	7KA 6.150	90-AK / SA-6-65120	150	45	48	97	21
	7KA 6.225	90-AG / SA-6-65126	225	120	48	97	21

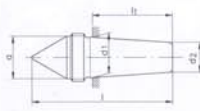
Interchangeable inserts

Taper 1:7,5 for all types LRE and LDE (page 6)
Forms AO, ASL, AKOP and B with draw-off nut.

Material

High-quality tool steel, hardened.

Form AO



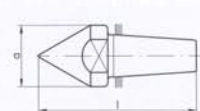
Form ASL



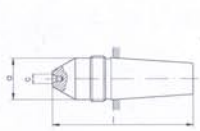
Form AKOP



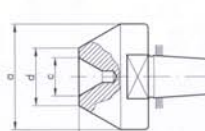
Form A



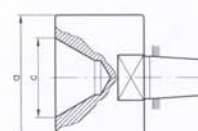
Form B



Form C



Form D



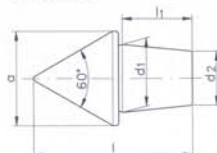
For live centres types LDE, LRE	Inter-changeable inserts ID. No.	Radial load max. daN	Insert dimensions (mm)						Thread	Cone dimensions (mm) 1:7,5			
			a	b	c	d	l	l _b		d ₁	d ₂	l ₁	
710E 045002	482AO	90	11,7					45		M 14 x 1,5	11,2	8	24
	482ASL	30	11,7	6				55	15	M 14 x 1,5			
	482AKOP	90	11,7	5				50		M 14 x 1,5			
	482A	90	17					45		M 14 x 1,5			
	482B	90	11,7		4 x 2			45		M 14 x 1,5			
	482C	90	28		8 x 3	12		45					
	482D	90	28		20 x 6			45					
700E 055003 700E 055C04 710E 055003	484AO	220	15,7					53		M 18 x 1,5	15,14	11	31
	484ASL	100	15,7	9				65	17	M 18 x 1,5			
	484AKOP	220	15,7	6				58		M 18 x 1,5			
	484A	220	25					60		M 18 x 1,5			
	484B	110	15,7		4 x 2			53		M 18 x 1,5			
	484C	190	44		15 x 5	24		60					
	484D	190	44		35 x 12			60					
700E 068004 710E 068004	487AO	325	21,6					74		M 24 x 1,5	22,14	16,44	43
	487ASL	100	21,6	9				86	17	M 24 x 1,5			
	487AKOP	325	21,6	8				80		M 24 x 1,5			
	487A	325	32					82		M 24 x 1,5			
	487B	240	21,6		5 x 2,5			74		M 24 x 1,5			
	487C	325	55		20 x 6	30		82					
	487D	325	55		45 x 15			82					
700E 092005 710E 092005	485AO	500	27,7					93		M 30 x 1,5	28,33	21	55
	485ASL	180	27,7	13				110	27	M 30 x 1,5			
	485AKOP	500	27,7	8				105		M 30 x 1,5			
	485A	500	45					105		M 30 x 1,5			
	485B	500	27,7		7 x 3			93		M 30 x 1,5			
	485C	500	65		25 x 6	35		105					
	485D	500	65		55 x 20			105					

Interchangeable inserts

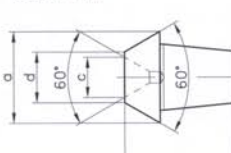
Forms ES and EH

Taper 1:5 for type LRK and type LDK (page 6 below), for type SK (Sandvik) and type K (SFJ).

Form ES



Form EH



Cone dimensions of inserts ES/EH (mm)

Inserts ID. No.	d ₁	d ₂	l ₁
ES 90-65102	11	9	11
EH 90-65108	11	9	11
ES 90-65103	14	11	15
EH 90-65109	14	11	15
ES 90-65104	18	14	19,5
EH 90-65110	18	14	19,5
ES 90-65105	28	22	29,5
EH 90-65111	28	22	29,5

For live centres Type LRK	Type LDK	Type ES ID. No.	Dimensions (mm)		Type EH ID. No.	Dimensions (mm)			
			a	l		a	d	c	l
	710K 045002	ES 90-65102	16	25	EH 90-65108	16	11,2	8	16
700K 055003	710K 055003	ES 90-65103	20	33	EH 90-65109	20	13,5	9	22
700K 068004	710K 068004	ES 90-65104	25	42	EH 90-65110	25	14,7	11	30
700K 092005	710K 092005	ES 90-65105	40	65	EH 90-65111	40	26,2	18	43

Advantages of types LRE und LDE:

Centrepoint with 1:7,5 internal taper for 7 different forms of insert.

Flexible application for different workpiece forms. Saving of repair cost:

If the centre diameter is worn, only the insert has to be changed.

Insert change is carried out according to the insert form: either by draw-off thread and draw-off nut or by applying two spanners to the flats on the centrepoint and insert.

Type LRE

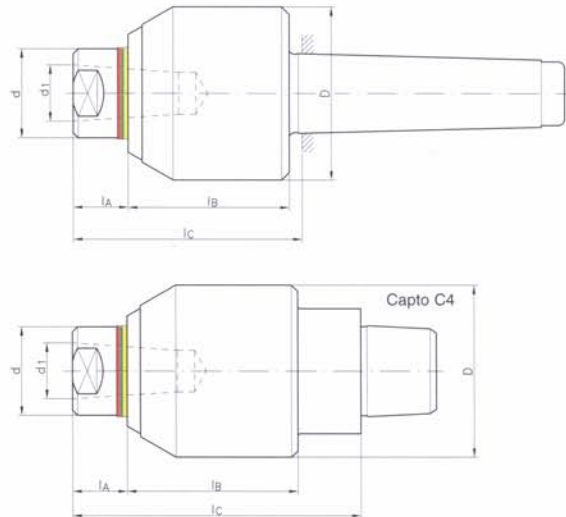
With spring, pressure indication by yellow, green and red coloured rings.

Eccentricity

max. 0.008 mm, with test report.

Applications

- For turning, CNC-turning, turning of components between live centre and face driver, on multi-spindle machines and CNC lathes with two tool turrets. See page 2 for explanations about line LR.



Type LRE ID. No.	Morse taper	max. axial force daN ¹⁾	Spring travel	max. r.p.m.	Dimensions (mm)						Load
					d	d ₁	D	l _A	l _B	l _C	
700E 055003	3	760	2,7	5000	25	15	55	15	51	71	The radial load of types LDE, LRE is restricted by the interchangeable inserts. (see page 7)
700E 068004	4	1100	4,2	4000	35	22	68	21	63	89	
700E 092005	5	2000	5,4	3500	50	28	92	28	82	116	
700E 055C04	Capto C4	760	2,7	5000	25	15	55	13	54	87	

¹⁾ Max. axial force at 100 r.p.m. and 2000 working hours of bearing service life. Design A available with draw-off nut.

Type LDE

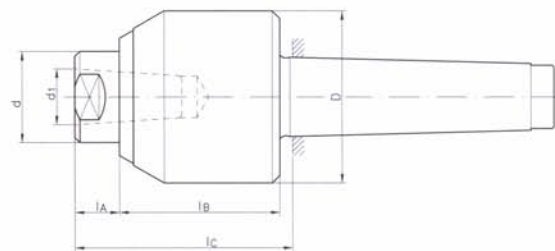
With expansion compensation, without pressure indication.

Eccentricity

max. 0.008 mm, with test report.

Applications

- For turning, CNC-turning. See page 2 for explanations about line LD.



Type LDE ID. No.	Morse taper	max. axial force daN ¹⁾	Spring travel	max. r.p.m.	Dimensions (mm)						Load
					d	d ₁	D	l _A	l _B	l _C	
710E 045002	2	600	0,85	5500	19	11	45	9	45	57	The radial load of types LDE, LRE is restricted by the interchangeable inserts. (see page 7)
710E 055003	3	760	0,95	5000	26	15	55	14	51	70	
710E 068004	4	1100	1,4	4000	36	22	68	18	63	86	
710E 092005	5	2000	1,8	3500	51	28	92	20	82	107	

¹⁾ Max. axial force at 100 r.p.m. and 2000 working hours of bearing service life. Design A available with draw-off nut.

**High-performance live centres
Centrepoint with 1:5 internal taper**

for two insert forms ES and EH (see page 7 below), available as special design. Dimensions and technical data as for type LRE/LDE.

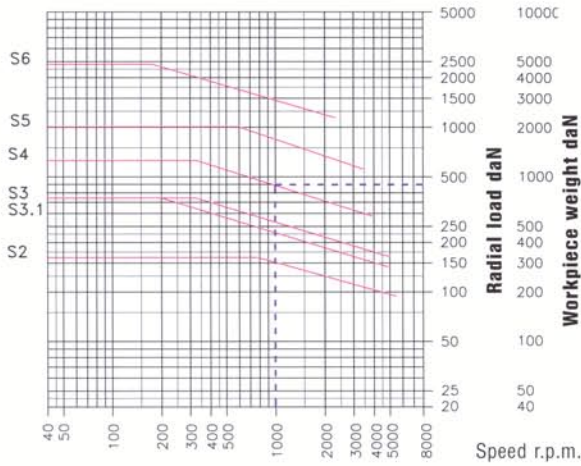
These special sizes are specified as:

Type LRK, 1:5 with spring, pressure indication by coloured rings. Order example: Type LRK MT4: ID. No.: 700K 068004

Type LDK, 1:5 with expansion compensation. Order example: Type LDK MT4: ID. No.: 710K 068004

Radial and axial loads for a bearing service life of 2000 working hours

Radial – Types LRS, LDS, LDA



Determination of the permissible load:

Example: Type LRS MT 4,

ID. No. 700S 068004:

Load graph radial S 4 / axial A 4

Permissible load at 1000 r.p.m.

Radial load $F_R = 450$ daN

Workpiece weight $F_W = 900$ daN

Axial load $F_A = 530$ daN

Decisive for the radial load-bearing capacity

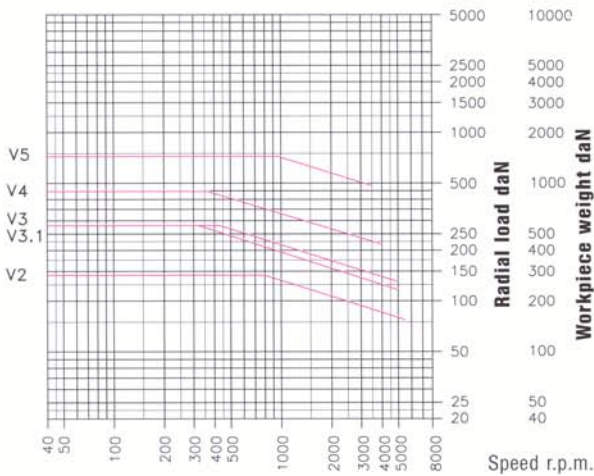
of a centre is the radial load F_R

$$F_R = \frac{F_W}{2} \pm \text{Radial cutting forces} + \text{centrifugal force}^*$$

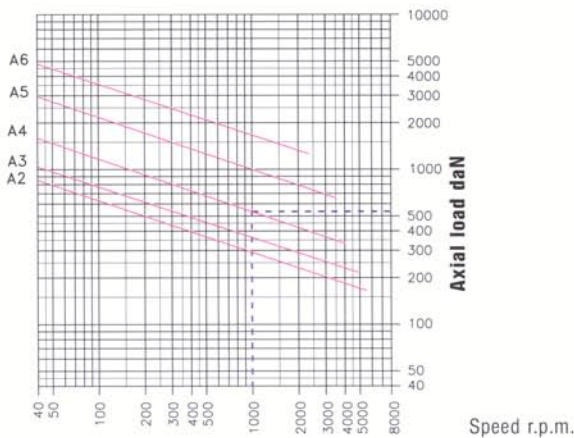
* At a flyweight of the workpiece

(1 daN = 1,02 kp)

Radial – Types LRV, LDV



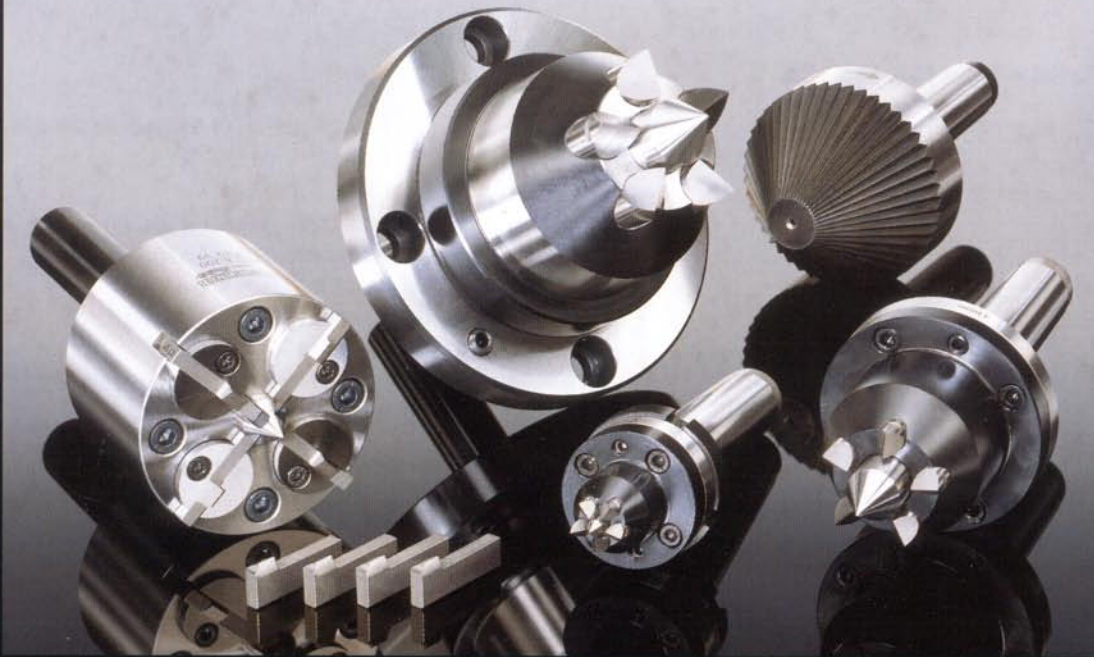
Axial – Types LRS, LDS, LDA, LRV, LDV



Subject to technical alterations.

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BRUCKNER face drivers,
face chucks system Bokö and work drivers



BRUCKNER high-performance live centres
with spring-loaded centrepoint



BRUCKNER – History

In the year 1918 Karl Bruckner founded the company. Since then it has been family-owned. At the start, dead centres were produced, but soon the live centre was developed. BRUCKNER has excellent world-wide reputation rooted in innovation and high quality standards.

The take-over of Böhner & Köhle's centres and drivers programme in 1995 has added new features especially to the "face driver" range and initiated dynamic developments in this field. We are proud that BRUCKNER is today a leading manufacturer and a competent partner for centres and face drivers.

**The BRUCKNER
tool range also includes:**

**High-performance live centres
and bullnose live centres**



**High-performance live centres
for heavy-duty work**



Carbide dead centres



Tool steel dead centres



**Tapered sleeves
Reduction sleeves**



Tailstock sleeves

Face chucks

Work drivers

Special designs

BRUCKNER[®]
Precision and reliability foremost

Karl Bruckner GmbH
Precision Tools Manufacturer

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