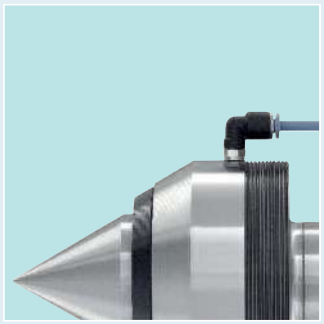
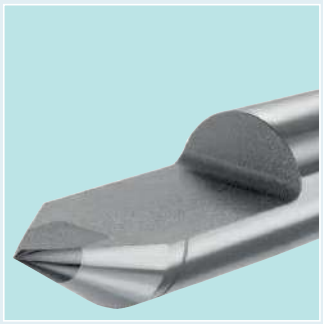
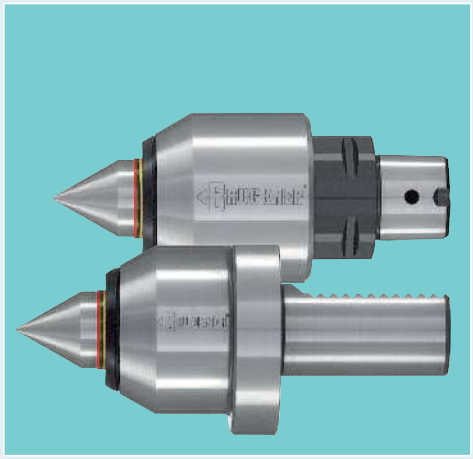
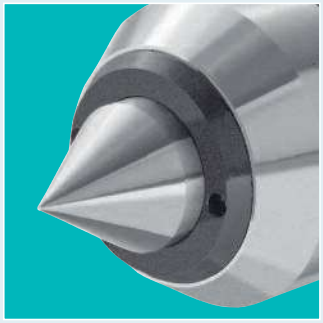
BRUCKNER®
Precision and reliability first

High Performance Centres

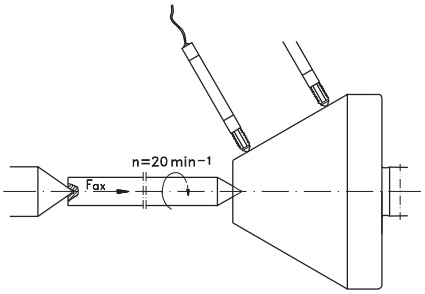
for Turning and Grinding

BRUCKNER WORKS STANDARD

BRUCKNER WORKS STANDARD
Our high performance bullnose live centres – standard as well as special designs – are produced and tested according to our own stringent works standard. Materials, production and testing are subject to strict quality guidelines guaranteeing function and performance of our tools.

Test report for accuracy and concentricity
Every single BRUCKNER high performance bullnose live centre is tested for its run-out under axial load. The test result is then stamped into the centre and is guaranteed by the test report and quality guidelines guaranteeing function.

Example: table „maximum runout“ for types ZA, ZAG



Type ZA	Type ZAG	Morse taper	runout max. Type ZA	runout max. Type ZAG	Fax daN
1920-1922	2120-2122	2	0.007	0.003	**160**
1930	2130	3	0.007	0.003	**160**
1831-1933	2031-2133	3	0.007	0.003	**210**
1841-1941	2041-2141	4	0.007	0.003	**210**
1942-1947	2142-2147	4	0.007	0.003	**450**
1952	2152	5	0.007	0.003	**450**
1953	2153	5	0.007	0.003	**600**
1954-1959	2154-2159	5	0.007	0.003	**600**
1964-1970	2164-2170	6	0.007	0.003	**600**
1983-1985	2183-2185	6	0.007	0.003	**600**

Bullnose centre head and taper shank
The bullnose centre head is of wear-resistant, through-hardened alloy tool steel. In contrast to usual case-hardening, this allows the head of the centre tobe reground several times without any loss of hardness. The taper shank is case hardened for protection from damage.

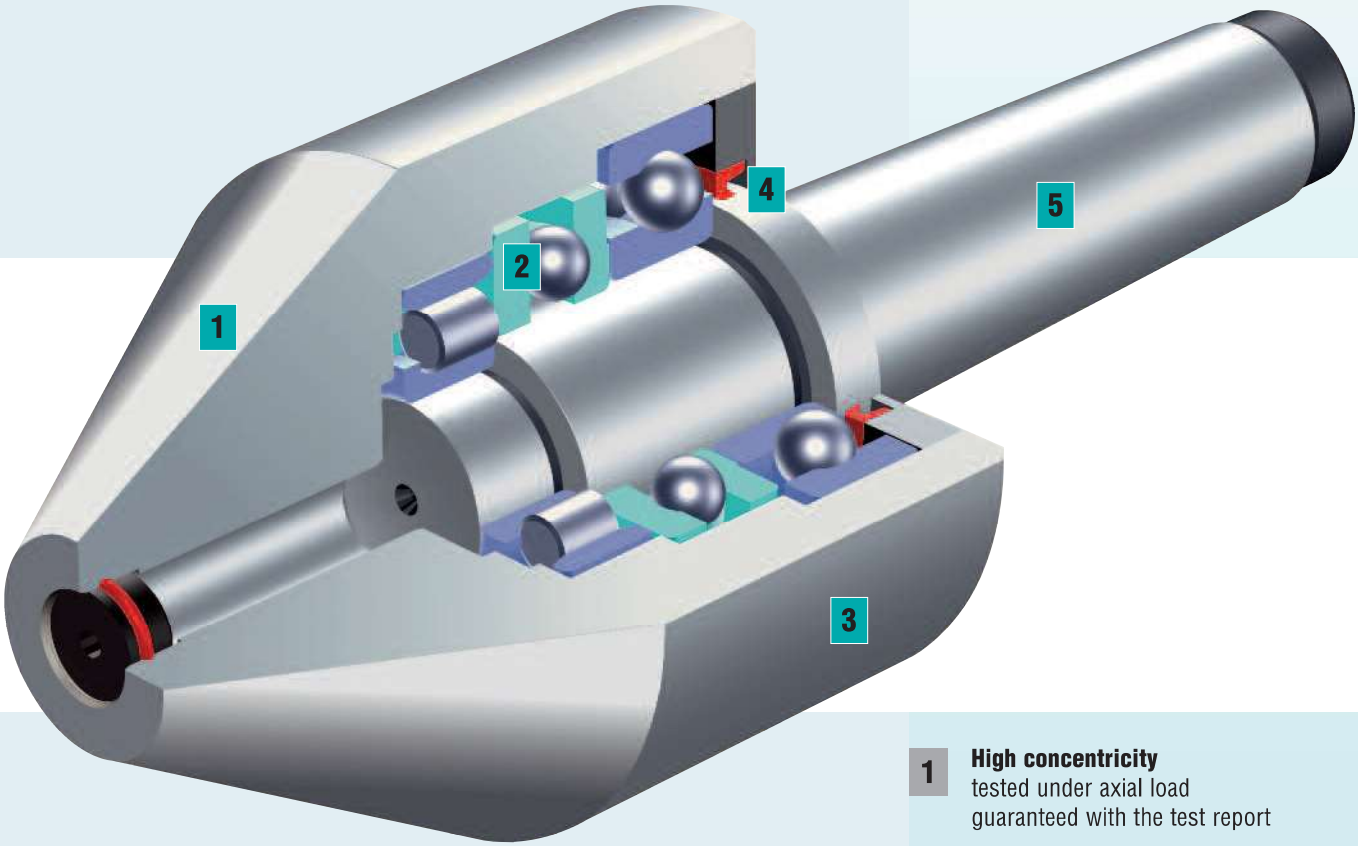
Tolerance of taper shank
The Morse taper is ground according to DIN 228 AT4 (gauge accuracy). This fine tolerance guarantees a close fit of the high-performance bullnose centre in the tailstock and the full utilisation of the concentricity accuracy.

Load values
The load values given in our tables are calculated with the world wide acknowledged software KISSsoft. When used in keeping with currently valid standards DIN and ISO, this software guarantees a safe and reliable load calculation.

Precision bearings
The bearings are selected according to the size of the morse taper.The bearing seats of the head and the taper shank are matched to the bearings and ground to precise tolerances. Bearings and their seats are selected to fit.
Result: high stability, minimum runout and long life.

Maintenance
The bearings are maintenance free with permanent lubrication.

Repair service
Our repair service is at your disposal. We judge the tool's condition and inform you about the extent of necessary refurbishment.



Robust and precise

Our bullnose live centres have sturdy roller bearings where the loads are heaviest. Combined with large axial and radial deep section ball bearings this design allows high loads with high concentricity and long life. BRUCKNER bullnose live centres sustain their reliability even when conditions are tough. For cylindrical grinding operations BRUCKNER bullnose live centres are market leaders. Such work demands bullnose centres with reserves of stability for good grinding results.

1 **High concentricity**
tested under axial load
guaranteed with the test report

2 **Large precision roller bearings, free from clearance**
to withstand the axial and radial forces.
Maintenance-free permanent lubrication

3 **Bullnose head**
of alloy tool steel, through-hardened

4 **Shaft seal**
protects the bearings from dirt and coolant

5 **Taper shank**
case hardened for protection from damage

Types ZA, ZAG

Angle 60°, 75°
without draw-off thread

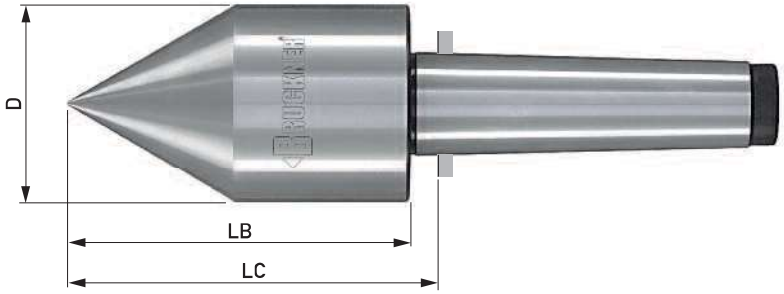
Runout
Type ZA max. 0.007 mm
Type ZAG max. 0.003 mm
with test report

Application
For turning and grinding tubes
and workpieces with large bores

Mechanical engineering
Main spindles for machine tools,
hollow shafts, paper rolls, rings
and gears

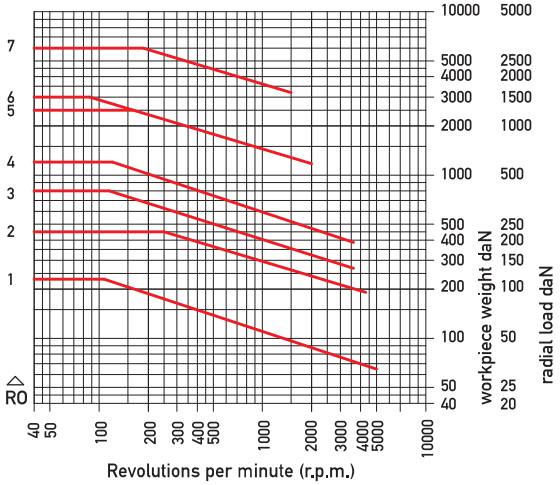
Car industry/Motor construction
Truck axial tubes, pistons,
cylinder liners, crankshafts, wheel hubs

Aircraft industry/Shipbuilding
Engine main shafts and transmission
components, turbines, drive shafts

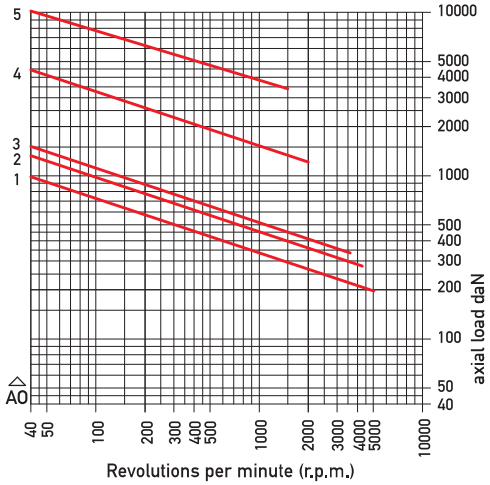


Radial and axial loads for a bearing life of 2.000 operating hours (see reading example page 11)

Radial – Types ZA, ZAG without draw-off-thread



Axial – Types ZA, ZAG without draw-off-thread



Types ZA, ZAG without draw-off thread 60°

Morse taper	ID.No. ZA	ID.No. ZAG	D	d	LC	LB	Workpiece weight max. daN*	r.p.m. max.*	load graph radial	load graph axial
2	1920:60	2120:60	45	15	78	70	230	5000	RO1	AO1
2	1821:60	2021:60	60	1	93	85				
2	1921:60	2121:60	60	20	74	66				
2	1922:60	2122:60	80	25	70	62				
3	1930:60	2130:60	45	15	78	70				
3	1831:60	2031:60	60	1	111	104	450	4300	RO2	AO2
3	1931:60	2131:60	60	20	95	88				
3	1932:60	2132:60	80	25	95	88				
3	1933:60	2133:60	100	35	95	88				
4	1841:60	2041:60	60	1	113	104				
4	1941:60	2141:60	60	20	97	88				
4	1942:60	2142:60	80	25	113	100	1200	3600	RO4	AO3
4	1943:60	2143:60	100	35	113	100				
4	1944:60	2144:60	125	40	113	100				
4	1945:60	2145:60	150	50	113	100				
4	1947:60	2147:60	200	75	135	122	800	3600	RO3	AO3
5	1952:60	2152:60	80	25	113	100	1200	3600	RO4	AO3
5	1953:60	2153:60	100	35	113	100				
5	1954:60	2154:60	125	40	144	130	2500	2000	RO5	AO4
5	1955:60	2155:60	150	50	136	122				
5	1957:60	2157:60	200	75	136	122				
5	1958:60	2158:60	250	130	136	122				
5	1959:60	2159:60	300	180	136	122				
6	1964:60	2164:60	125	40	146	130	3000	2000	RO6	AO4
6	1965:60	2165:60	150	50	138	122				
6	1967:60	2167:60	200	75	138	122				
6	1968:60	2168:60	250	130	138	122				
6	1969:60	2169:60	300	180	138	122				
6	1970:60	2170:60	350	230	138	122				
6	1983:60	2183:60	250	100	176	160	6000	1500	RO7	AO5
6	1985:60	2185:60	350	180	186	170				

Bullnose centres with other shanks on request

*observe the load graphs

Types ZA, ZAG without draw-off thread 75°

Morse taper	ID.No. ZA	ID.No. ZAG	D	d	LC	LB	Workpiece weight max. daN*	r.p.m. max.*	load graph radial	load graph axial
5	1953:75	2153:75	100	25	109	96	1200	3600	RO4	AO3
5	1954:75	2154:75	125	30	144	130	2500	2000	RO5	AO4
5	1955:75	2155:75	150	50	134	120				
5	1957:75	2157:75	200	75	124	110				
5	1958:75	2158:75	250	110	124	110				
5	1959:75	2159:75	300	160	124	110				
6	1964:75	2164:75	125	30	146	130	3000	2000	RO6	AO4
6	1965:75	2165:75	150	50	136	120				
6	1967:75	2167:75	200	75	126	110				
6	1968:75	2168:75	250	110	126	110				
6	1969:75	2169:75	300	160	126	110				
6	1970:75	2170:75	350	190	138	122				
6	1983:75	2183:75	250	75	181	165	6000	1500	RO7	AO5
6	1985:75	2185:75	350	120	186	170				

Bullnose centres with other shanks on request

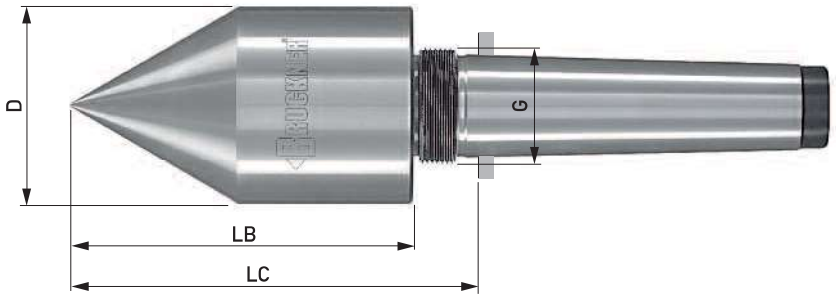
*observe the load graphs

Types ZA, ZAG

Angle 60° 75°
With draw-off thread and draw-off nut

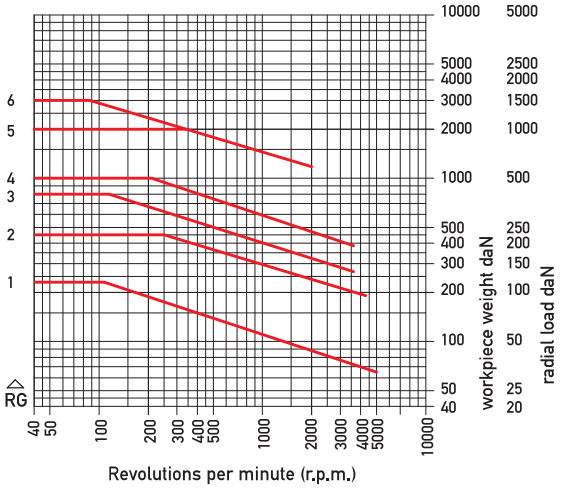
Runout
Type ZA max. 0.007 mm
Type ZAG max. 0.003 mm
with test report

Application
As for types ZA/ZAG on page 50, but for machine tools with tailstock sleeves without through bores (without the possibility to eject centres) or for high precision machine tools for the protection of the spindle bearings or the tailstock sleeve

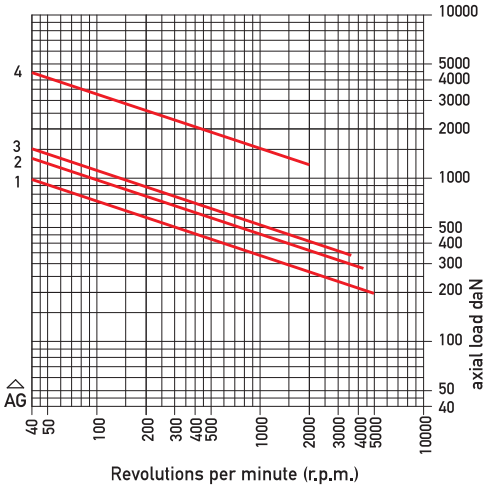


Radial and axial loads for a bearing life of 2.000 operating hours (see calculation example page 11)

Radial – Types ZA, ZAG with draw-off thread



Axial – Types ZA, ZAG with draw-off thread



Types ZA, ZAG with draw-off thread and draw-off nut 60°

Morse taper	ID.No. ZA	ID.No. ZAG	D	d	LC	LB	G	Workpiece weight max. daN*	r.p.m. max.*	load graph radial	load graph axial
2	1920:60A	2120:60A	45	15	86	70	M 22x1.5	230	5000	RG1	AG1
2	1821:60A	2021:60A	60	1	101	85	M 22x1.5				
2	1921:60A	2121:60A	60	20	82	66	M 22x1.5				
2	1922:60A	2122:60A	80	25	78	62	M 22x1.5				
3	1930:60A	2130:60A	45	15	86	70	M 28x1.5				
3	1831:60A	2031:60A	60	1	120	104	M 28x1.5	450	4300	RG2	AG2
3	1931:60A	2131:60A	60	20	104	88	M 28x1.5				
3	1932:60A	2132:60A	80	25	104	88	M 28x1.5				
3	1933:60A	2133:60A	100	35	104	88	M 28x1.5				
4	1841:60A	2041:60A	60	1	120	104	M 35x1.5				
4	1941:60A	2141:60A	60	20	104	88	M 35x1.5				
4	1942:60A	2142:60A	80	25	119	100	M 35x1.5	1000	3600	RG4	AG3
4	1943:60A	2143:60A	100	35	119	100	M 35x1.5				
4	1944:60A	2144:60A	125	40	119	100	M 35x1.5				
4	1945:60A	2145:60A	150	50	119	100	M 35x1.5				
4	1947:60A	2147:60A	200	75	141	122	M 35x1.5	800	3600	RG3	AG3
5	1952:60A	2152:60A	80	25	129	100	M 48x1.5	1000	3600	RG4	AG3
5	1953:60A	2153:60A	100	35	129	100	M 48x1.5				
5	1954:60A	2154:60A	125	40	158	130	M 50x1.5	2000	2000	RG5	AG4
5	1955:60A	2155:60A	150	50	150	122	M 50x1.5				
5	1957:60A	2157:60A	200	75	150	122	M 50x1.5				
5	1958:60A	2158:60A	250	130	150	122	M 50x1.5				
5	1959:60A	2159:60A	300	180	150	122	M 50x1.5				
6	1964:60A	2164:60A	125	40	159	130	M 68x1.5	3000	2000	RG6	AG4
6	1965:60A	2165:60A	150	50	151	122	M 68x1.5				
6	1967:60A	2167:60A	200	75	151	122	M 68x1.5				
6	1968:60A	2168:60A	250	130	151	122	M 68x1.5				
6	1969:60A	2169:60A	300	180	151	122	M 68x1.5				
6	1970:60A	2170:60A	350	230	151	122	M 68x1.5				

Bullnose centres with other shanks on request

*observe the load graphs

Types ZA, ZAG with draw-off thread and draw-off nut 75°

Morse taper	ID.No. ZA	ID.No. ZAG	D	d	LC	LB	G	Workpiece weight max. daN*	r.p.m. max.*	load graph radial	load graph axial
5	1953:75A	2153:75A	100	25	125	96	M 48x1.5	1000	3600	RG4	AG3
5	1954:75A	2154:75A	125	30	158	130	M 50x1.5	2000	2000	RG5	AG4
5	1955:75A	2155:75A	150	50	148	120	M 50x1.5				
5	1957:75A	2157:75A	200	75	138	110	M 50x1.5				
5	1958:75A	2158:75A	250	110	138	110	M 50x1.5				
5	1959:75A	2159:75A	300	160	138	110	M 50x1.5				
6	1964:75A	2164:75A	125	30	159	130	M 68x1.5	3000	2000	RG6	AG4
6	1965:75A	2165:75A	150	50	149	120	M 68x1.5				
6	1967:75A	2167:75A	200	75	139	110	M 68x1.5				
6	1968:75A	2168:75A	250	110	139	110	M 68x1.5				
6	1969:75A	2169:75A	300	160	139	110	M 68x1.5				
6	1970:75A	2170:75A	350	190	151	122	M 68x1.5				

Bullnose centres with other shanks on request

*observe the load graphs

for hard turning

for vertical turning machines

with internal taper 1:7.5
for interchangeable inserts

with spring and coloured pressure indication

High Performance Bullnose Live Centres Special Designs

for mounting chucks

pointed design

with carbide cap and flange mounting

with carbide triple contact pads

from small to large

with sealing air connection

HSK40

Capto4

ABS50

large centrepoint

live collet chuck

carbide spherical centre

BRUCKNER®
Precision and reliability first

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Precision Tool Manufactures

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with hydraulic compensation

SM Face Drivers
with mechanical compensation

Work Drivers