

Table of contents

Steady rests, Face Drivers, Driven tools

Self-centering steady rests

SLZ	6302
Accessories SLZ	6308
SLZB	6309
Accessories SLZB	6311
SLZ - heavy design	6312
SLZW	6313
SLZC	6315
SLZK	6316
SLZR	6317
SLZV/SLZVB	6323

Control systems and Accessories

LSG	6332
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Power-operated Face Drivers

CoK 8-80 mm	6335
Adapter plate CoK	6336
Accessories CoK	6337
CoK 50-250 mm	6339
Adapter plate CoK	6339
Driving discs CoK	6340
Accessories CoK	6341
Power-operated Driving Heads CoK	6342
Accessories CoK	6346

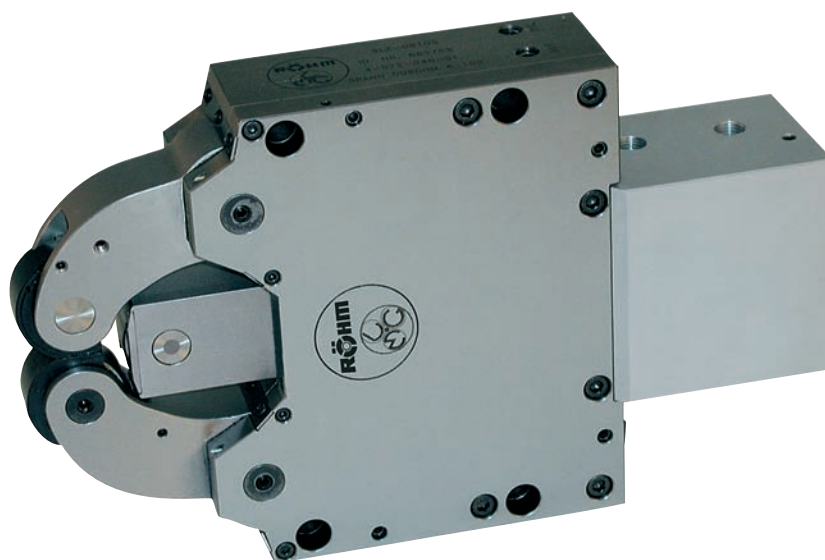
Hirth crown gears

Hirth crown gears	6348
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Driven tools

Axial Tool Heads	6351
Radial Tool Heads	6357
Axial Tool Heads for radial machining	6361
Radial Tool Heads for axial machining	6363

**Fast movements accompanied by a lot of pressure.
And with tremendous tension
for an absolutely secure hold.
Extremely snappy solutions
- yet entirely harmless!**





STEADY RESTS - DRIVENTOOLS

Self-centering steady rests SLZ	6302
Self-centering steady rests SLZB	6311
Self-centering steady rests SLZ - heavy design	6312
Self-centering steady rests SLZW	6313
Self-centering steady rests SLZC	6315
Self-centering steady rests SLZK	6316
Self-centering steady rests SLZR	6317
Self-centering steady rests SLZV	6323
Hydraulic power units	6332
Power-operated Face Drivers CoK	6335
Hirth crown gears	6348
Driven tools	6351



Overview

Steady rests, oil or air operated

Optimal support.

High repeatability, high stiffness, easy mounting, small dimensions, air purge to prevent dirt penetration, stroke control and central lubrication are features highlighting the RöhM steady rests.



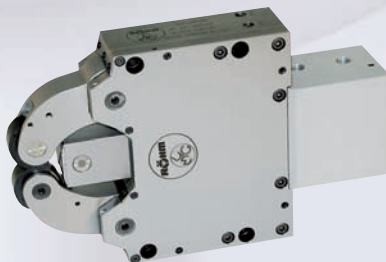
SLZC

extremely compact design,
developed for minimum mounting dimensions



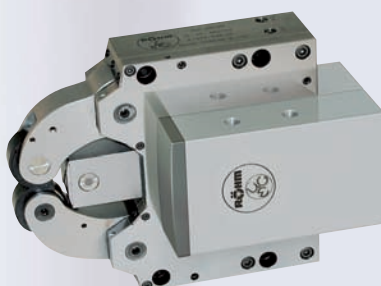
SLZK

with slim clamping arms
for machining crankshafts



SLZ

with mounted cylinder



SLZB

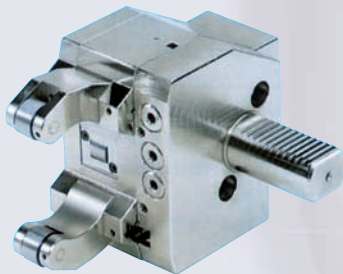
with side mounted cylinder

Overview



SLZW

extra opening of one arm



SLZR

for turrets on four axis lathes



SLZV

Steady rest for grinding with fine adjustment of X- and Y- axis for the machining of slim shafts

Technical features

To more efficient turning of slender shafts

With these steady rests, Röhm engineers have made an important contribution to solving the problems related to supporting slender work (shafts) on lathes.

The requirements that must be met by modern steady rests can be summarized as follows:

- Large clamping range with no need for interchangeable elements
- Compact (short and robust) construction
- High centering accuracy and repeatability throughout the clamping range
- No loss of accuracy when changing clamping pressure
- Central lubrication

The steady rests of the SLZ range meet all these requirements. The cam-and-lever system has been optimized in comparison to known solutions and permits the three rollers performing the centering and supporting functions to be applied to the workpiece almost symmetrically with a spacing of $3 \times 120^\circ$.

This feature together with an innovative internal compensating system (on request) which compensates for the displacement of the workpiece center occurring under changing pressures in conventional steady rests accounts for the unusually high centering accuracy throughout the working range.

For central lubrication only one connection is necessary.

The proportioning units for the rollers are integrated in the body of the rest and assure sufficient greasing in the respective greasing interval.

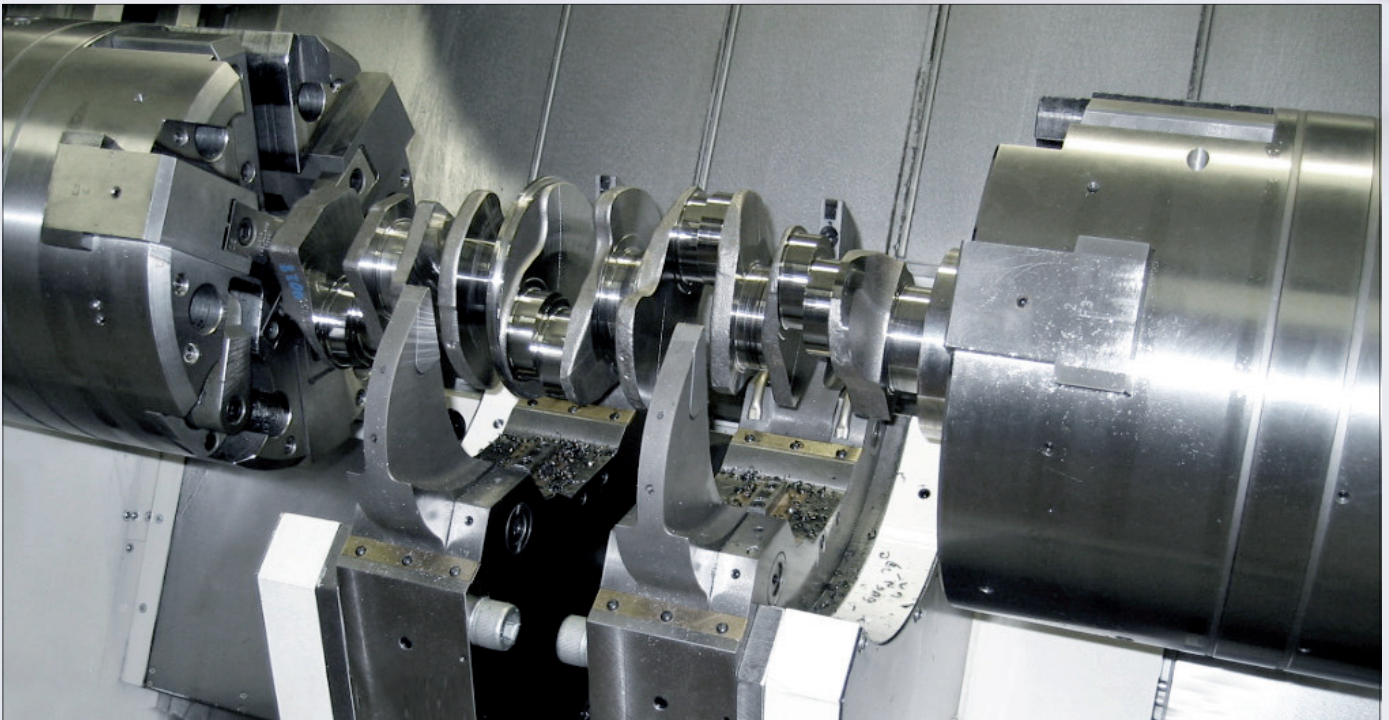
Various mounting options permit these steady rests to be used for turning outside diameters, facing, centering, drilling, internal machining, recessing, parting-off, copy turning etc., both as fixed steady rests and following rests, in any desired angular positioning relative to the cutting tool.

Even with a fixed steady rest, the outside diameter of the shaft can be turned on its entire length since the clearance between the rollers leaves room for the cutting tool and the rollers are reclamped with self-centering action. As a rule, 2 steady rests should be used for support so that one can support the work on the full width of the rollers at any time.

The attached actuating cylinder can be selected for hydraulic or pneumatic actuation. The only difference is in the size of the piston areas. In the standard version, the cylinder is attached as an axial extension of the steady rest housing. With Typee SLZB the cylinder is bolted to the side of the steady rests body.

Depending on requirements and proposed use, the steady rest is available with a stroke monitor or safety device only. The supporting rollers are carried in radial and axial antifriction bearings. Both cylindrical and convex rollers are available as standard equipment. Convex rollers must be used for tapered work and follower rests. Here again, special designs are available on request to complete the range.

Versions

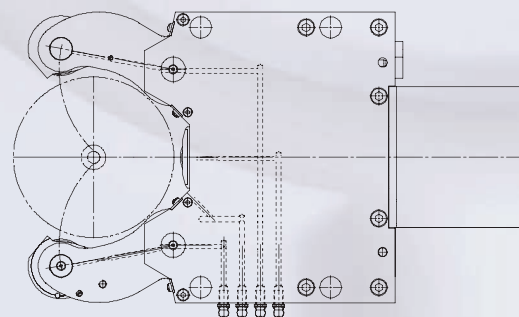
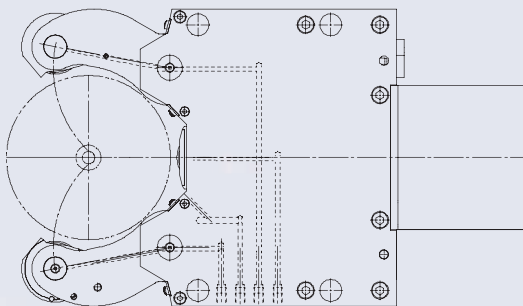


Oil central lubrications

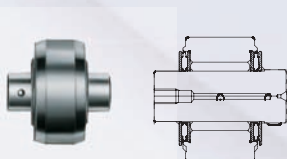
Röhm steady rests are normally equipped with central lubrication. The necessary dosage valves are situated in the steady rest body. Lubrication cycles 2 - 5 minutes depending on load at a cycle pressure between 16 - 50 bar.

Manual Lubrication (Option)

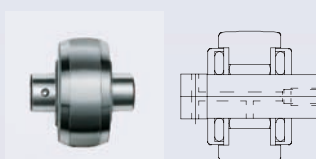
Steady rest for average load and low dirt quote. Lubrication points and rollers will be greased with grease nipples and a grease gun. Lubrication cycle all 4 to 8 operation hours depending on application.



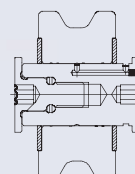
Cylindrical roller
Roller design for standard cases



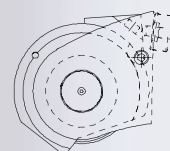
Convex roller
for conical workpieces and following steady rests

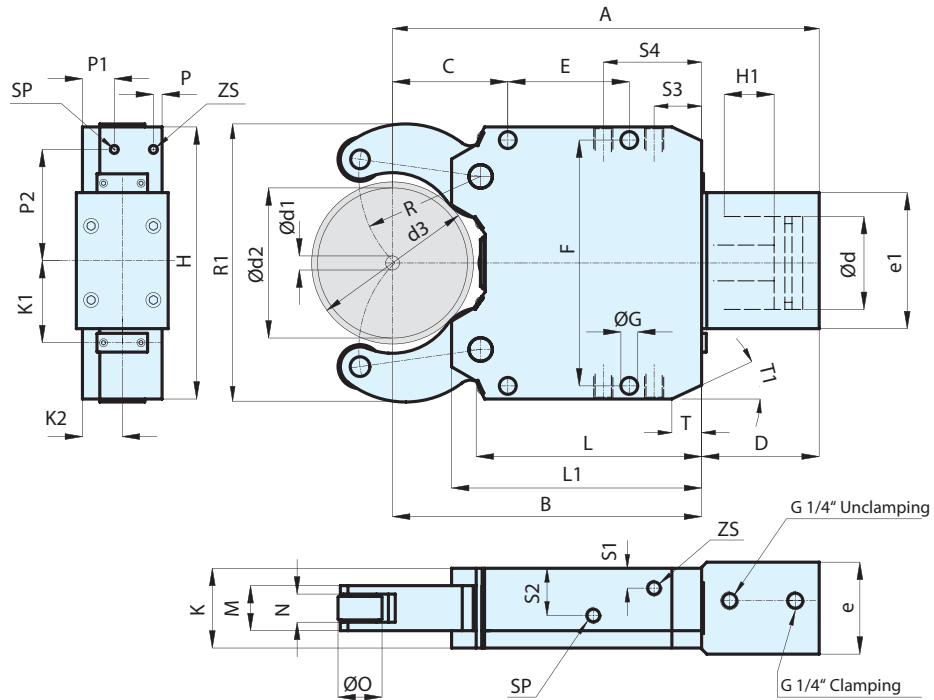


Special rollers
on request



Chip protector
Standard design





Tool group C 15
Type 576
Self-centering steady rests **SLZ** -
oil or air operated
With mounted cylinder

Clamping ranges Type	SLZ 047	SLZ 08105	SLZ 1152	SLZ 1517	SLZ 40200	SLZ 325	SLZ 50315	SLZ 95360
Clamping range - with chip protection	15-62	16-101	22-140	25-158	40-195	40-240	50-305	95-355
Clamping range - without chip protection	4-70	8-105	11-152	15-170	40-200	35-250	50-315	95-360
Max. radial clamping range - d3	70	105	161	170	200	250	315	360
With chip protectors RZ	685751	685755	685763	685771	1685600	685779	685787	1685604
With chip protectors RB	685752	685756	685764	685772	1685601	685780	685789	1685605
Without chip protectors RZ	685753	685757	685765	685773	1685602	685781	685790	1685606
Without chip protectors RB	685754	685758	685766	685774	1685603	685782	685791	1685607
d ₁	4	8	12	15	40	35	50	95
d ₂	70	105	152	170	200	250	315	360
d ₃	70	105	161	170	200	250	315	360
A	206	279,5	431,5	439,5	458,5	617,5	699	730,5
B	137	197	306	314	333	451	521,5	553
C	51	70	115	123	138	146	203	234,5
D	69	82,5	125,5	125,5	125,5	166,5	177,5	177,5
E	64	85	135	135	135	240	270	270
F	118	170	262	262	262	365	400	400
G	11	14	18	18	18	23	23	23
H	132	190	290	290	290	400	440	440
K	54	58	85	85	85	110	145	145
L	102	143	223	223	223	331,5	361	361
L1	115,5	164	251	251	251	364	406	406
Clamping arm width M	20	31	48	48	48	60	75	75
Roller width N	11,5/9	20,5/19	30/25	30/25	30/25	40/35	45/40	45/40
O	19	35	47	47	47	52	60	60
P	-	-	9,5	9,5	9,5	13	21,5	21,5
P1	-	-	34	34	34	12,5	12,5	12,5
P2	-	-	121	121	121	160	160/175	160/175
R	48,6	74,5	122	130	143,5	183	209	242
S1	8	9,5	-	-	-	-	-	-
S2	23	33	-	-	-	-	-	-
S3	10	28	-	-	-	-	-	-
S4	34,5	28	-	-	-	-	-	-
K1	-	61,5	85	85	85	98	150	141
K2	-	30	42,5	42,5	42,5	55	59,5	59,5
d	40	50	80	80	80	100	100	100
e	60	68	98	98	98	124	142	142
e _i	87	92	145	145	145	156	156	156
T	-	-	-	-	-	45	31,5	31,5
T1	-	-	-	-	-	30°	30°	30°
R1	121	190	281	296,5	320	394	483	534
Weight kg	7	14,5	47	47	48	115	185	190
ZS	M 10x1	M 10x1	M 10x1	M 10x1	M 10x1	M 10x1	M 10x1	M 10x1
SP	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"

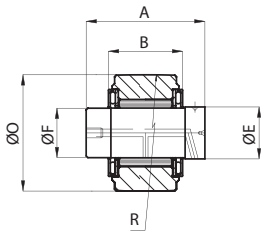
SLZ standard design

Clamping ranges Type	SLZ 047	SLZ 08105	SLZ 1152	SLZ 1517	SLZ 40200	SLZ 325	SLZ 50315	SLZ 95360
Cylinder-Ø	C40	C50	C80	C80	C80	C100	C100	C100
Cylinder surface area cm ²	12,5	19,6	50	50	50	78,5	78,5	78,5
Max. operating pressure bar	25	53	62	68	40	57	80	58
Operating pressure bar	5-20	6-30	6-40	6-44	6-25	8-42	8-58	8-40
Clamping force per roller at max. operating pressure daN	83	196	650	650	416	1100	1400	1046
Max. permissible clamping force per roller daN	104	350	1000	1000	667	1500	2000	1500
Clamping force per roller at 20 bar daN	83	130	323	280	280	520	520	500
Centering accuracy over the entire clamping range mm	0,02*	0,02*	0,04*	0,04*	0,04*	0,05*	0,06*	0,06*
Repeat accuracy for the same clamping-Ø at the same operating pressure mm	0,005	0,005	0,005	0,005	0,005	0,005	0,01	0,01
Max. roller peripheral speed m/min	800	800	725	725	725	715	700	700
Max. roller peripheral speed at half the max. clamping force per roller m/min	900	950	875	875	875	860	850	850
Displacement of the geometrical workpiece center in the event of a 20-70% change in the operating pressure /at constant force) mm	0,02	0,02	0,03	0,03	0,03	0,03	0,03	0,03
Compensating system on request								

* At constant pressure and clamping force

Accessories SLZ

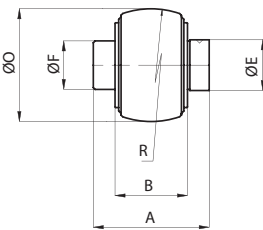
Tool group C 15
Type 576-ZR **Cylindrical rollers**



Item no.	For	A	B	Ø F	Ø O	Ø E	R
735120	SLZ 047	20	11,5	6	19	6	500
1831277	SLZ/SLZB 08105	31	20,5	15	35	15	500
649513	SLZ/SLZB 1152, SLZ/SLZB 1517, SLZ/SLZB 40200	48	30	20	47	21	1000
649514	SLZ/SLZB 325	60	40	20	52	21	3000
381420	SLZ/SLZB 50315, SLZ/SLZB 95360	75	45	20,1	60	21	3000

Rollers SLZ 047 and 08105 without axle

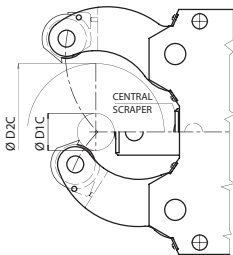
Tool group C 15
Type 576-BR **Convex rollers**



Item no.	For	A	B	Ø F	Ø O	Ø E	R
1831281	SLZ 047	20	11,5	6	19	6	500
649787 ²⁾	SLZ/SLZB 08105	31	20,5	15	35	15	100
649780 ¹⁾	SLZ/SLZB 08105	31	20,5	15	35	15	100
649515	SLZ/SLZB 1152, SLZ/SLZB 1517, SLZ/SLZB 40200	48	30	20	47	21	100
649516	SLZ/SLZB 325	60	40	20	52	21	100
381426	SLZ/SLZB 50315, SLZ/SLZB 95360	75	45	20,1	60	21	500

¹⁾ 1x central
²⁾ 2x outer
SLZW on request

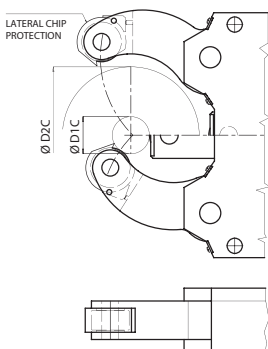
Tool group C 15
Type 576-RZ **Central scraper RZ**



Item no.	For	Clamping ranges D1C	Clamping ranges D2C
836591	SLZ 047	15	62
836604	SLZ/SLZB 08105	16	101
1831222	SLZ/SLZB 1152	22	140
1831134	SLZ/SLZB 1517, SLZ/SLZB 40200	25/40	158/195
735005	SLZ/SLZB 325	40	240
836584	SLZ/SLZB 50315, SLZ/SLZB 95360	50/95	305/355

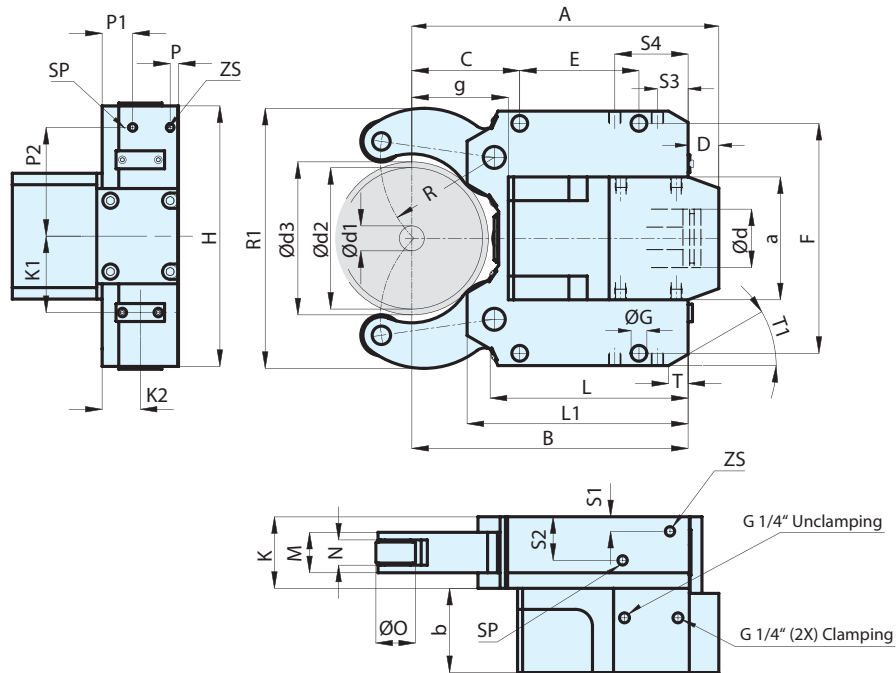
Scraper RB on request

Tool group C 15
Type 576-SSA **Chip protector**
outer
Set = 2 Pieces



Item no.	For	Clamping ranges D1C	Clamping ranges D2C
836609	SLZ 047	15	62
836610	SLZ/SLZB 08105	16	101
836611	SLZ/SLZB 1152, SLZ/SLZB 1517, SLZ/ SLZB 40200	22/25/40	140/158/195
836612	SLZ/SLZB 325	40	240
836613	SLZ/SLZB 50315, SLZ/SLZB 95360	50/95	305/355

SLZB with side mounted cylinder



Tool group C 15
Type 576
Self-centering steady rests **SLZB**
- oil or air operated
With **side mounted cylinder**

Clamping ranges Type	SLZB 08105	SLZB 1152	SLZB 1517	SLZB 40200	SLZB 325	SLZB 50315	SLZB 95360
Clamping range - with chip protection	16-101	22-140	25-158	40-195	40-240	50-305	95-355
Clamping range - without chip protection	8-105	11-152	15-170	40-200	35-250	50-315	95-360
Max. radial clamping range - d3	105	161	170	200	250	315	360
With chip protectors RZ	685792	685796	685748	1685608	685744	685740	1685612
With chip protectors RB	685793	685797	685747	1685609	685743	685739	1685613
Without chip protectors RZ	685794	685750	685746	1685610	685742	685738	1685614
Without chip protectors RB	685795	685749	685745	1685611	685741	685737	1685615
d ₁	8	11	15	40	35	50	95
d ₂	105	152	170	200	250	315	360
d ₃	105	161	170	200	250	315	360
A	228	341	349	368	489	566,5	598
B	197	306	314	333	451	521,5	553
C	70	115	123	138	146	203	234,5
D	31	35	35	35	38	45	45
E	85	135	135	135	240	270	270
F	170	262	262	262	365	400	400
G	14	18	18	18	23	23	23
H	190	290	290	280	400	440	440
K	58	85	85	85	110	145	145
L	143	223	223	223	331,5	361	361
L1	164	251	251	251	364	406	406
Clamping arm width M	31	48	48	48	60	75	75
Roller width N	20,5/19	30/25	30/25	30/25	40/35	45/40	45/40
O	35	47	47	47	52	60	60
P	-	9,5	9,5	9,5	13	21,5	21,5
P1	-	34	34	34	12,5	12,5	12,5
P2	-	121	121	121	160	160/175	160/175
R	74,5	122	130	143,5	183	209	242
S1	9,5	-	-	-	-	-	-
S2	33	-	-	-	-	-	-
S3	28	-	-	-	-	-	-
S4	28	-	-	-	-	-	-
K1	61,5	85	85	85	98	150	141
K2	30	42,5	42,5	42,5	55	59,5	59,5
a	95	140	140	140	180/136	180/136	180/136
b	53	100	100	100	106/119	101/114	101/114
d	50	80	80	80	100	100	100
g	69	102	110	135	180	182,5	214
T	-	-	-	-	45	31,5	31,5
T1	-	-	-	-	30°	30°	30°
R1	190	281	296,5	320	394	483	534
Weight kg	14,5	51	51	52	134	194	199
ZS	M 10x1	M 10x1	M 10x1	M 10x1	M 10x1	M 10x1	M 10x1
SP	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"

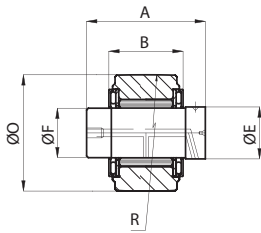
SLZB with side mounted cylinder

Clamping ranges Type	SLZB 08105	SLZB 1152	SLZB 1517	SLZB 40200	SLZB 325	SLZB 50315	SLZB 95360
Cylinder-Ø	C50	C80	C80	C80	C100	C100	C100
Cylinder surface area cm ²	19,6	50	50	50	78,5	78,5	78,5
Max. operating pressure bar	53	62	68	40	57	80	58
Operating pressure bar	8-30	8-40	8-44	8-25	8-42	8-58	4-40
Clamping force per roller at max. operating pressure daN	196	650	650	416	1100	1400	1046
Max. permissible clamping force per roller daN	350	1000	1000	667	1500	2000	1500
Clamping force per roller at 20 bar daN	130	323	280	280	520	520	500
Centering accuracy over the entire clamping range mm	0,02*	0,04*	0,04*	0,04*	0,05*	0,06*	0,06*
Repeat accuracy for the same clamping-Ø at the same operating pressure mm	0,005	0,005	0,005	0,005	0,005	0,01	0,01
Max. roller peripheral speed m/min	800	725	725	725	715	700	700
Max. roller peripheral speed at half the max. clamping force per roller m/min	950	875	875	875	860	850	850
Displacement of the geometrical workpiece center in the event of a 20-70% change in the operating pressure /at constant force) mm	0,02	0,03	0,03	0,03	0,03	0,03	0,03
Compensating system on request							

* At constant pressure and clamping force

Accessories SLZB

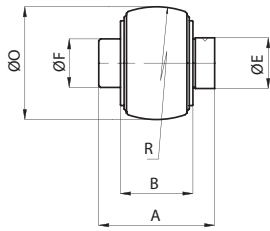
Tool group C 15
Type 576-ZR **Cylindrical rollers**



Item no.	For	A	B	Ø F	Ø O	Ø E	R
1831277	SLZ/SLZB 08105	31	20,5	15	35	15	500
649513	SLZ/SLZB 1152, SLZ/SLZB 1517, SLZ/SLZB 40200	48	30	20	47	21	1000
649514	SLZ/SLZB 325	60	40	20	52	21	3000
381420	SLZ/SLZB 50315, SLZ/SLZB 95360	75	45	20,1	60	21	3000

Rollers SLZ 047 and 08105 without axle

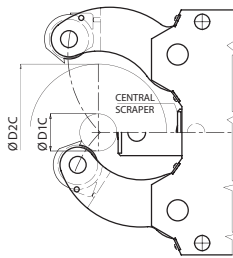
Tool group C 15
Type 576-BR **Convex rollers**



Item no.	For	A	B	Ø F	Ø O	Ø E	R
649787 ¹⁾	SLZ/SLZB 08105	31	20,5	15	35	15	100
649780 ¹⁾	SLZ/SLZB 08105	31	20,5	15	35	15	100
649515	SLZ/SLZB 1152, SLZ/SLZB 1517, SLZ/SLZB 40200	48	30	20	47	21	100
649516	SLZ/SLZB 325	60	40	20	52	21	100
381426	SLZ/SLZB 50315, SLZ/SLZB 95360	75	45	20,1	60	21	500

¹⁾ 1x central
¹⁾ 2x outer

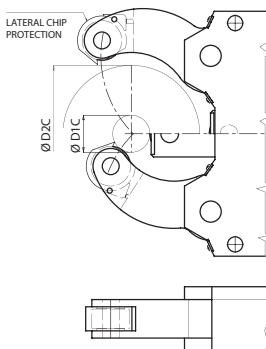
Tool group C 15
Type 576-RZ **Central scraper RZ**



Item no.	For	Clamping ranges D1C	Clamping ranges D2C
836604	SLZ/SLZB 08105	16	101
1831222	SLZ/SLZB 1152	22	140
1831134	SLZ/SLZB 1517, SLZ/SLZB 40200	25/40	158/195
735005	SLZ/SLZB 325	40	240
836584	SLZ/SLZB 50315, SLZ/SLZB 95360	50/95	305/355

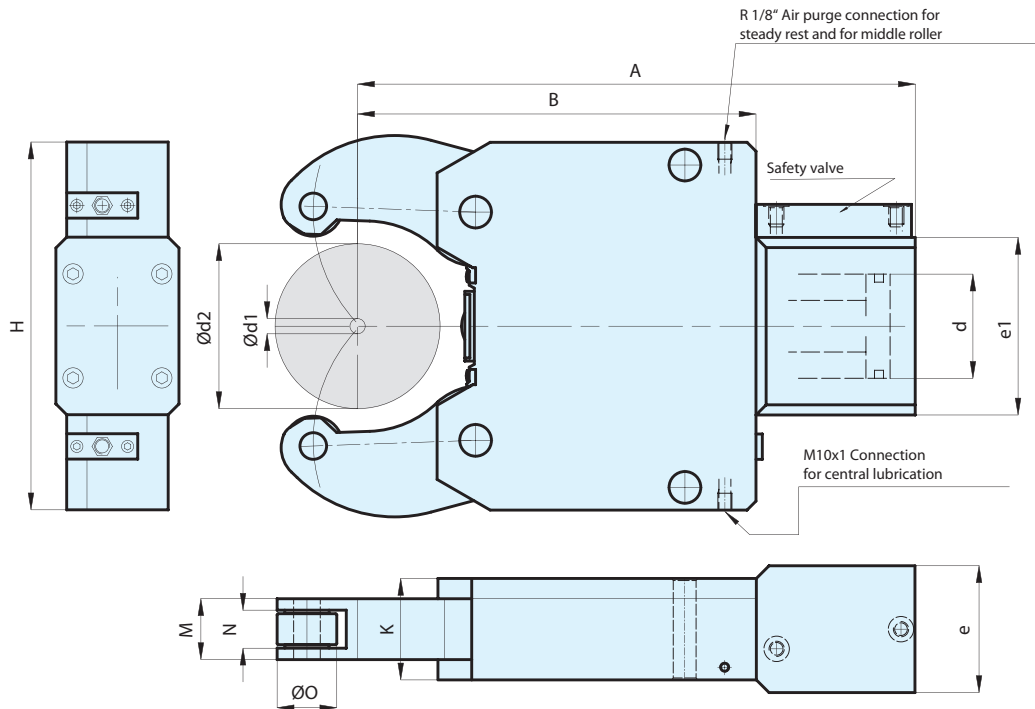
Scraper RB on request

Tool group C 15
Type 576-SSA **Chip protector
outer**
Set = 2 Pieces



Item no.	For	Clamping ranges D1C	Clamping ranges D2C
836610	SLZ/SLZB 08105	16	101
836611	SLZ/SLZB 1152, SLZ/SLZB 1517, SLZ/ SLZB 40200	22/25/40	140/158/195
836612	SLZ/SLZB 325	40	240
836613	SLZ/SLZB 50315, SLZ/SLZB 95360	50/95	305/355

SLZ - heavy design

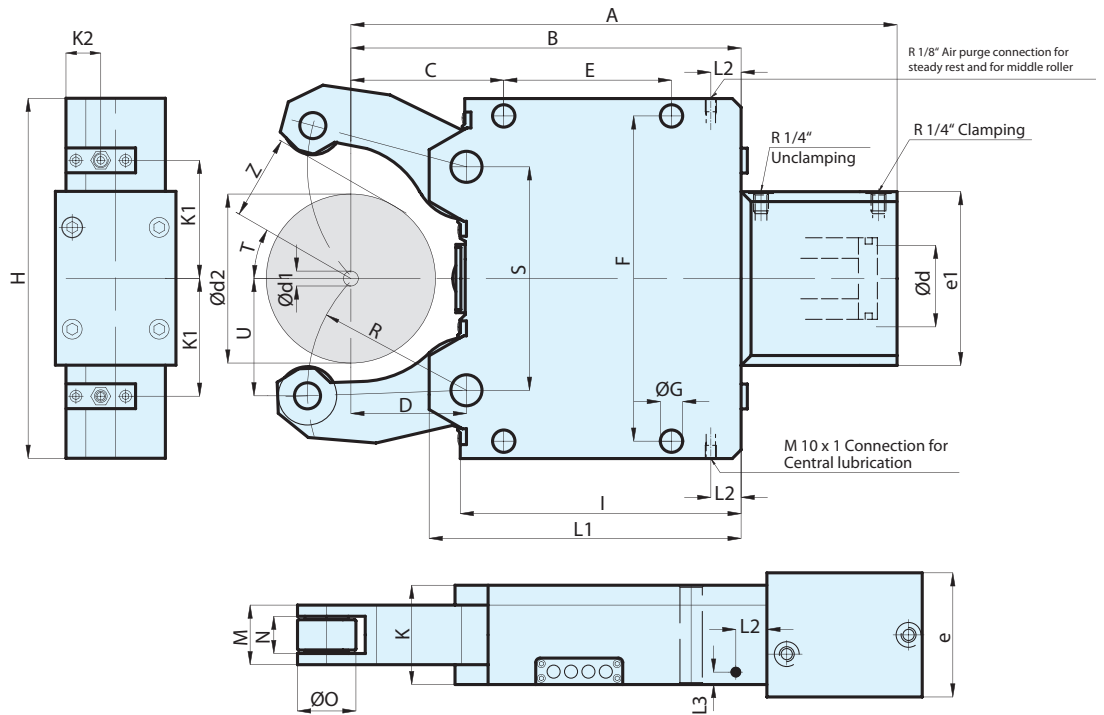


Tool group C 15
Type 576
Self-centering steady rests **SLZ heavy design**
oil or air operated
Heavy design for high loads

Clamping ranges Type	SLZ 437	SLZ 5040	SLZ 1546	SLZ 1060	SLZ 3580
Clamping range - with chip protection	75-350	75-380	150-430	100-590	350-770
Clamping range - without chip protection	40-375	50-400	150-460	100-600	350-800
With chip protectors RZ	685899	1685722	685897	685896	685895
With chip protectors RB	685894	685893	685892	685891	685890
Without chip protectors RZ	685889	685888	685887	685886	685885
Without chip protectors RB	685884	685883	685882	685881	685880
d ₁	40	50	150	100	350
d ₂	370	400	460	600	800
A	1086	1100	1110	1465	1810
B	762	800	800	1105	1340
H	730	730	730	1020	1270
K	170	170	170	270	440
Clamping arm width M	90	90	90	170	240
Roller width N	60/50	60/50	60/50	104/95	150/138
O	80	80	80	160	220
d	120	120	120	150	180
e	150	150	150	260	370
e ₁	240	240	240	280	320
Weight kg	490	500	570	2000	4000
Cylinder-Ø	C120	C120	C120	C150	C180
Cylinder surface area cm ²	113	113	113	176	254
Max. operating pressure bar	100	100	85	90	98
Operating pressure bar	10-40	10-40	10-40	10-40	10-40
Clamping force per roller at max. operating pressure daN	1500	1500	1500	2300	3200
Max. permissible clamping force per roller daN	3500	3500	4000	5000	8000
Centering accuracy over the entire clamping range mm	0,04*	0,04*	0,04*	0,04*	0,06*
Repeat accuracy for the same clamping-Ø at the same operating pressure mm	0,01	0,01	0,01	0,01	0,01
Max. roller peripheral speed m/min	725	725	725	725	715
Max. roller peripheral speed at half the max. clamping force per roller m/min	875	875	875	875	860
Displacement of the geometrical workpiece center in the event of a 20-70% change in the operating pressure /at constant force) mm	0,06	0,06	0,06	0,06	0,06
Compensating system on request					

* At constant pressure and clamping force

SLZW one arm with extra opening



Tool group C 15
Type 576
Self-centering steady rests **SLZW**
oil or air operated
One arm extra opening

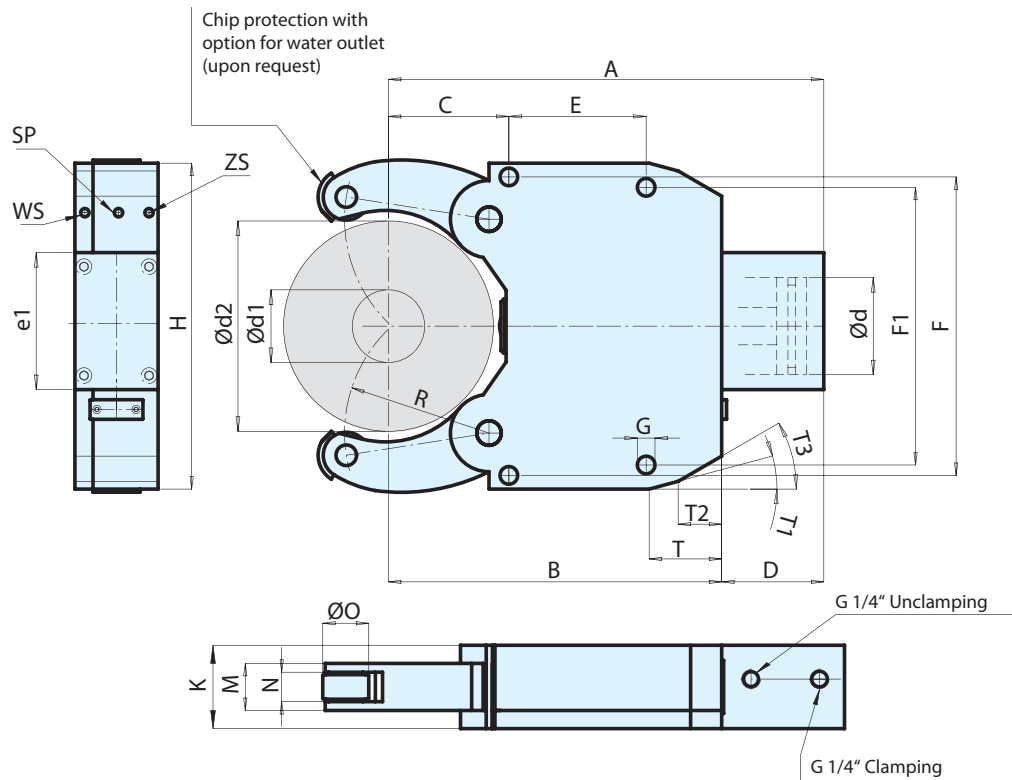
Clamping ranges Type	SLZW 445	SLZW 890	SLZW 12150	SLZW 35220	SLZW 50270
Clamping range - without chip protection	4-50	8-90	12-150	35-220	50-270
With chip protectors RZ	685555	1685658	685917	685916	685915
With chip protectors RB	685914	1685659	685912	685911	685910
Without chip protectors RZ	685696	1685660	685907	685906	685905
Without chip protectors RB	685904	1685661	685902	685901	685900
d ₁	4	8	12	35	50
d ₂	50	90	150	220	270
A	206	297	439,5	628	726
B	137	197	314	451	545
C	51	70	123	146	203
D	33	52,5	93	124,5	156
E	64	85	135	240	270
F	118	170	262	365	400
G	11	14	18	23	23
H	132	190	290	400	446
I	104	150	221	329,5	390
K	45	55	80	110	145
L1	119	164	251	364	433
Clamping arm width M	20	31	48	60	75
Roller width N	11,5/9	17,5/14	30/25	40/35	45/40
O	19	30	47	52	60
Z	25	45	75	110	135
U	36,5	62	103,5	143,5	168
T	30°	30°	30°	30°	30°
R	47,5	74,3	128	178	223,5
S	74	111	180	256	310
K1	-	61	85	130	150
K2	-	27	28,5	55	67,5
d	40	50	80	100	100
e	60	68	98	116,5	139
e ₁	87	92	140	186	156
L2	40	26	28	21	30
L3	11	14,5	9	50	175
Weight kg	6	14,5	50	130	190

SLZW one arm with extra opening

Clamping ranges Type	SLZW 445	SLZW 890	SLZW 12150	SLZW 35220	SLZW 50270
Cylinder-Ø	C40	C50	C80	C100	C100
Cylinder surface area cm ²	12,5	19,6	50	78,5	78,5
Max. operating pressure bar	22	45	60	50	70
Operating pressure bar	6-18	8-30	8-40	8-38	8-50
Clamping force per roller at max. operating pressure daN	75	196	600	995	1200
Max. permissible clamping force per roller daN	90	290	940	1100	1600
Clamping force per roller at 20 bar daN	83	130	290	480	480
Centering accuracy over the entire clamping range mm	0,02*	0,02*	0,04*	0,05*	0,07*
Repeat accuracy for the same clamping-Ø at the same operating pressure mm	0,005	0,005	0,005	0,005	0,01
Max. roller peripheral speed m/min	800	800	725	715	700
Max. roller peripheral speed at half the max. clamping force per roller m/min	900	950	875	860	850

* At constant pressure and clamping force

SLZC extremely compact design

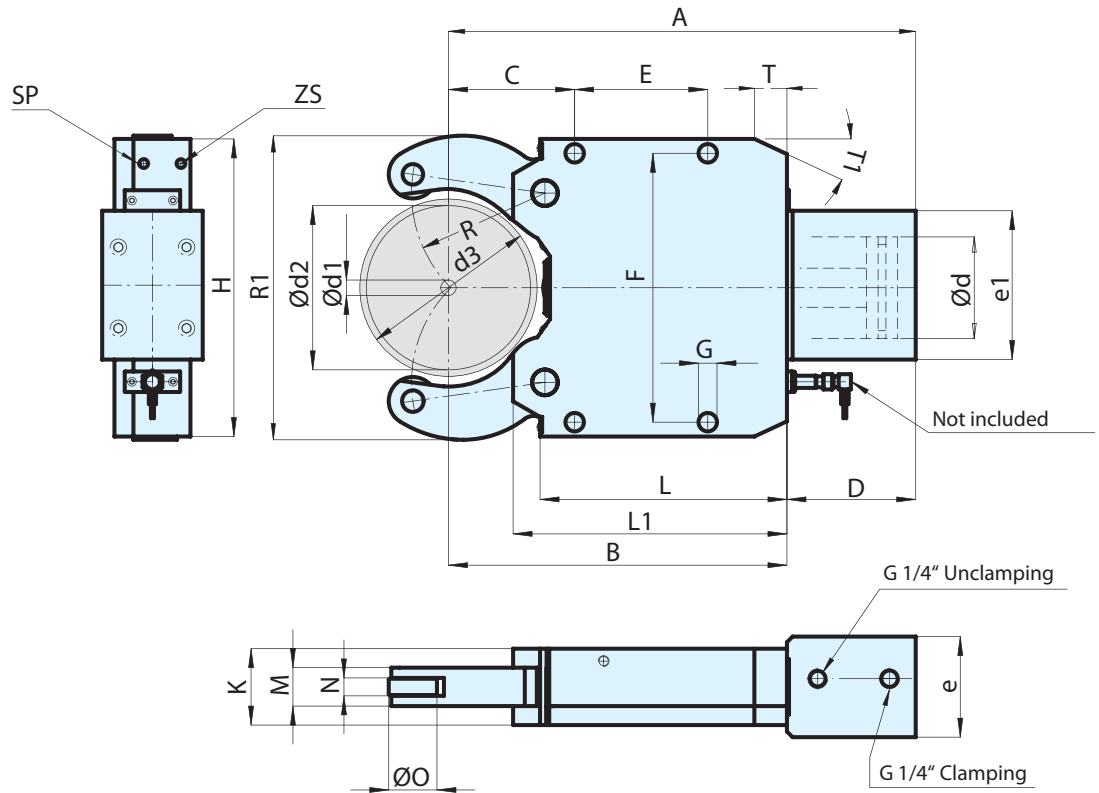


Tool group C 15
Type 576
Self-centering steady rests **SLZC**
oil or air operated
Extremely compact design,
developed for **minimum mounting**
dimensions

Clamping ranges Type	SLZC 60280	SLZC 80390	SLZC 100410	SLZC 135460	SLZC 215510
Clamping range - without chip protection	60-280	80-390	100-410	135-460	215-520
With chip protectors RZ	1685616	1685620	1685624	1685628	1685632
With chip protectors RB	1685617	1685621	1685625	1685629	1685633
Without chip protectors RZ	1685618	1685622	1685626	1685630	1685634
Without chip protectors RB	1685619	1685623	1685627	1685631	1685635
d ₁	60	80	100	135	215
d ₂	280	390	410	460	520
A	580	755	763	816	817
B	450	607	617	670	685
C	168	230	240	215	245
D	130	148	146	146	132
E	180	240	240	330	300
F	360	445	445	640	640
F1	360	445	445	610	610
G	23	23	23	27	27
H	400	485	485	680	680
K	125	150	150	150	150
Clamping arm width M	60	75	75	75	75
Roller width N	40/35	45/40	45/40	29	29
O	52	60	60	80	80
R	200	265	275	290	310
d	90	100	100	120	120
e ₁	184	194	194	215	215
T	100	130	130	150	150
T1	15°	15°	15°	15°	20°
T2	61	50	50	77	85
T3	30°	30°	30°	30°	30°
Weight kg	85	170	170	390	380
ZS	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"
SP	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"
WS	G 1/4"	G 1/4"	G 1/4"	G 1/4"	G 1/4"
Operating pressure bar	8-70	8-80	8-80	8-80	8-80
Max. permissible clamping force per roller daN	1450	2000	2000	2500	2500
Centering accuracy over the entire clamping range mm	0,05*	0,06*	0,06*	0,06*	0,06*
Repeat accuracy mm	0,007*	0,01*	0,01*	0,01*	0,01*
Max. roller peripheral speed m/min	715	700	700	700	700

* At constant pressure and clamping force
Water connection (WS) on request

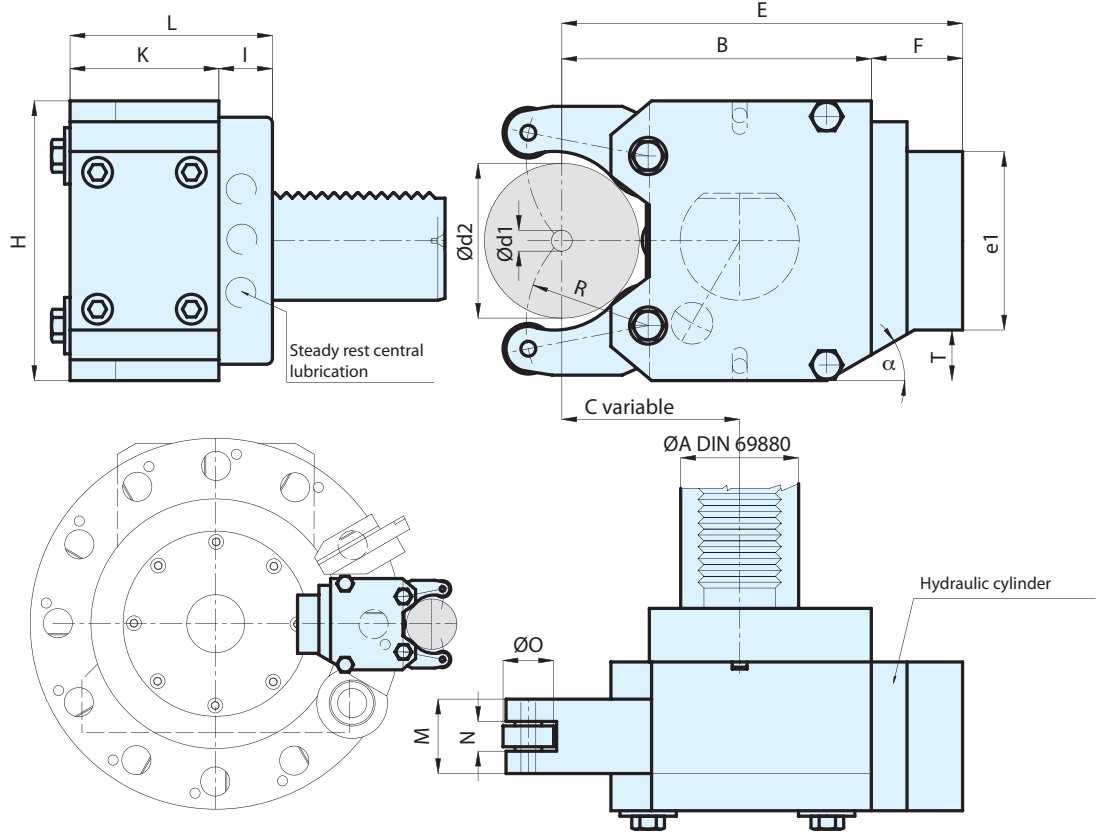
SLZK with slim clamping arms



Tool group C 15
Type 576
Self-centering steady rests **SLZK**
oil or air operated
With slim clamping arms,
developed for a machining
crankshafts

Clamping ranges Type	SLZK 08101-15	SLZK 08101-19	SLZK 08101-22	SLZK 40200-18	SLZK 40200-22	SLZK 325-19	SLZK 325-22	SLZK 325-29
Clamping range - with chip protection	16-101	16-101	16-101	30-185	30-185	35-248	35-248	35-248
Clamping range - without chip protection	8-105	8-105	8-105	30-185	30-185	35-250	35-250	35-250
With chip protectors RZ	1685636	1685638	1685640	1685642	1685644	1685646	1685648	1685650
Without chip protectors RB	1685637	1685639	1685641	1685643	1685645	1685647	1685649	1685651
d ₁	8	8	8	30	30	35	35	35
d ₂	105	105	105	185	185	250	250	250
d ₃	106	106	106	190	190	254	254	254
Max. Ø opening range d4sw	113	113	113	200	200	263	263	263
A	279,5	279,5	279,5	458,5	458,5	617,5	617,5	617,5
B	197	197	197	333	333	451	451	451
C	70	70	70	138	138	146	146	146
D	82,5	82,5	82,5	125,5	125,5	166,5	166,5	166,5
E	85	85	85	135	135	240	240	240
F	170	170	170	262	262	365	365	365
G	14	14	14	18	18	23	23	23
H	190	190	190	290	290	400	400	400
K	50	50	50	85	85	110	110	110
L	143	143	143	223	223	331,5	331,5	331,5
L1	164	164	164	251	251	364	364	364
Clamping arm width M	15	18	22	18	22	19	22	29
Roller width N	8	10	13	11	13	11	13	16
O	35	35	35	47	47	52	52	52
R	74,5	74,5	74,5	143,5	143,5	183	183	183
d	50	50	50	60	60	60	60	60
e	68	68	68	98	98	124	124	124
e ₁	92	92	92	145	145	156	156	156
T	-	-	-	-	-	45	45	45
T1	-	-	-	-	-	30°	30°	30°
R1	190	190	190	320	320	394	394	394
Weight kg	11,5	11,5	11,5	40	40	80	80	80
ZS	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"
SP	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"	G 1/8"
Operating pressure bar	8-50	8-50	8-50	8-60	8-60	8-70	8-70	8-70
Max. permissible clamping force per roller daN	300	380	420	560	700	720	720	750
Centering accuracy over the entire clamping range mm	0,03*	0,03*	0,03*	0,05*	0,05*	0,06*	0,06*	0,06*
Repeat accuracy mm	0,007*	0,007*	0,007*	0,007*	0,007*	0,01*	0,01*	0,01*
Max. roller peripheral speed m/min	750	750	750	715	715	700	700	700

* At constant pressure and clamping force



Tool group C 15
Type 576

Self-centering steady rests **SLZR**
oil or air operated
With shafts in accordance with
DIN 69880,
for **CNC turning machines**
with **4 axes**

Clamping ranges Type	SLZR 0432 M	SLZR 0752 M	SLZR 0865 M
Clamping range - with chip protection	4-32	7-52	8-65
Clamping range - without chip protection	4-32	7-52	8-65
With chip protectors RZ	1685662	685879	685878
With chip protectors RB	1685663	685877	685876
Without chip protectors RZ	1685664	685875	685874
Without chip protectors RB	1685665	685873	685872
d ₁	4	7	8
d ₂	32	52	65
Ø A	20-30-40-50	30-40-50	30-40-50
B	86	104	112
E	117	138	146
H	80	94	105
I	18	23	23
K	36	50	50
L	54	73	73
Clamping arm width M	15	25	25
Roller width N	9	9	12
O	19	19	19
R	32	40	48
e ₁	54	60	60
T	-	-	23
α	-	-	30°
Weight kg	2,1	3,5	3,5
central lubrication	in adaptor plate	in steady rest	in steady rest
Cylinder-Ø	30	32	32
Operating pressure bar	8-28	8-28	8-28
Max. working pressure bar	35	35	35
Max. permissible clamping force per roller daN	95	95	100
Centering accuracy over the entire clamping range mm	0,02*	0,02*	0,02*
Repeat accuracy for the same clamping-Ø at the same operating pressure mm	0,005	0,005	0,005
Max. roller peripheral speed m/min	950	950	950

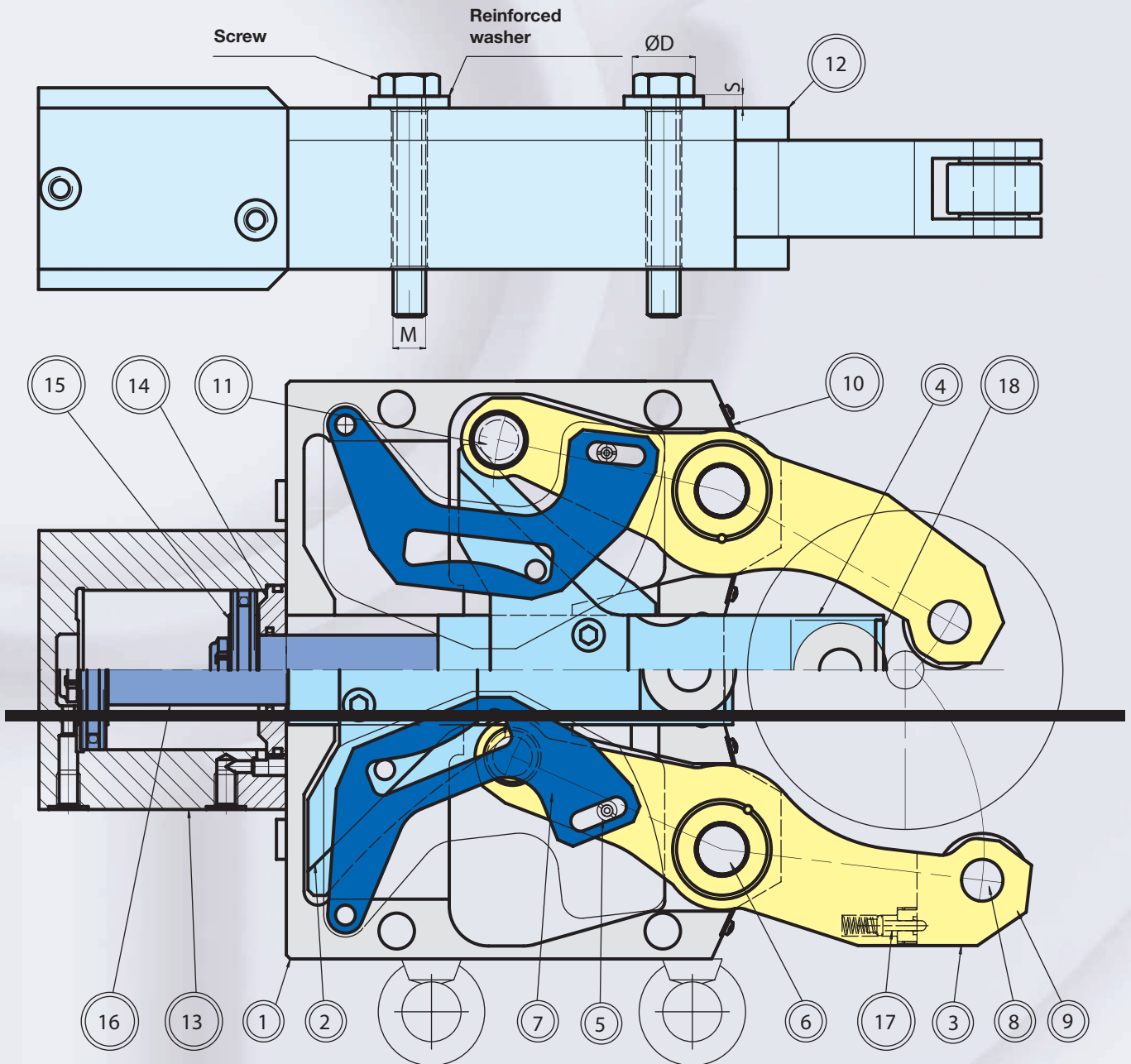
* At constant pressure and clamping force

Construction principle SLZ / SLZB

All steady rests have an engraved identification number. This number must be provided when ordering replacement parts.

Components SLZ/SLZB

- | | |
|-------------------------|----------------------|
| 1. Body | 10. Scraper band |
| 2. Cam segment | 11. Axle and rollers |
| 3. Clamping arm outside | 12. Cover |
| 4. Clamping arm center | 13. Cylinder housing |
| 5. Bolt and roller | 14. Cylinder flange |
| 6. Clamping arm arbor | 15. Piston |
| 7. Return lever | 16. Piston rod |
| 8. Roller center | 17. Pressure sleeve |
| 9. Roller | 18. Scraper center |

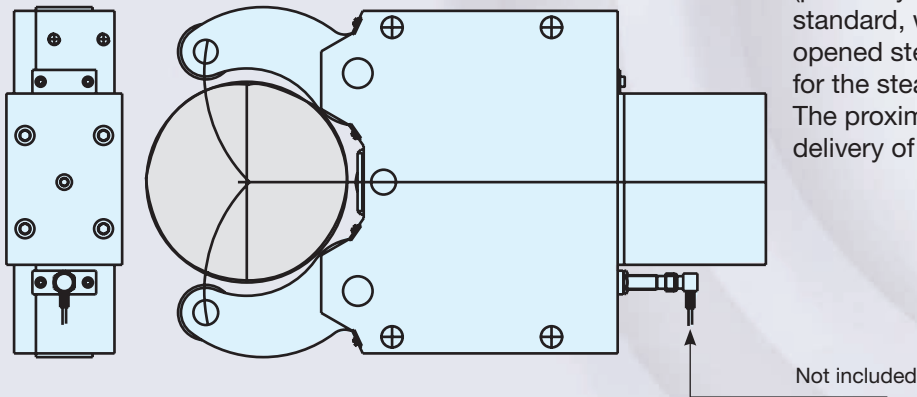


Type	SLZ 047	SLZ/SLZB 08105	SLZ/SLZB 1152	SLZ/SLZB 1517	SLZ/SLZB 40200	SLZ/SLZB 325	SLZ/SLZB 50315	SLZ/SLZB 95360
Screw M	M 10	M 12	M 16	M 16	M 16	M 20	M 20	M 20
Screw torque daN/m	4	7	12	12	12	19	21	21
Washer thickness S	4	4	4	4	4	5	5	5
Outer diameter of washer D	25	26	34	34	34	48	48	48

Accessories SLZ series

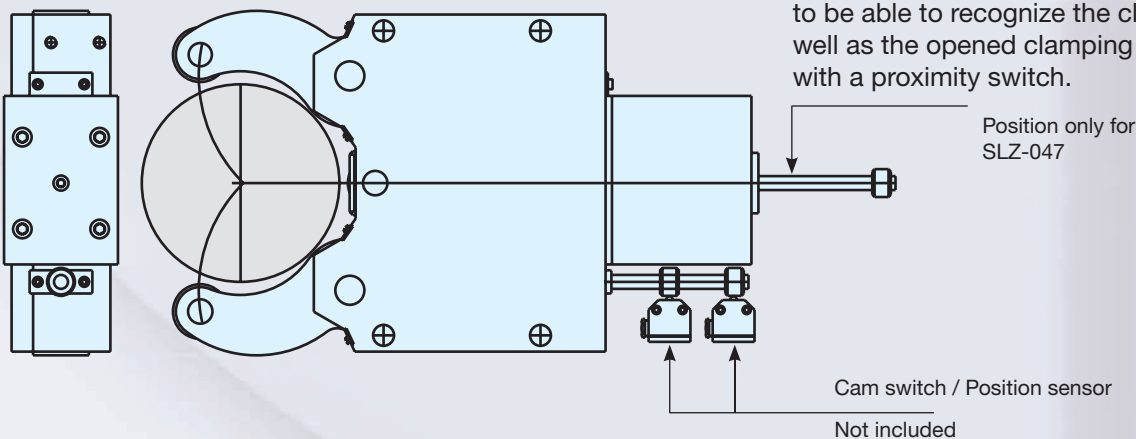
- ZS** = Central lubrication of the steady rest
- SE** = Cylinder with safety valve
- HN** = Control via proximity switch (not included in delivery) steady rest in open position
- SS** = Chip protection outer arms
- RZ** = Cylindrical rollers
- RB** = Convex rollers
- HK** = Stroke monitoring rod
- HK-IP5** = Stroke monitoring with 2 proximity switches (opening and closing) with seal housing IP552 (proximity switches not included in delivery)
- MS** = Manual lubrication, grease/oil
- RAB** = Manual regulation of the opening of the clamping arms

Clamping arm control system SLZ-HN



There is the option of attaching a sensor (proximity switch) to the steady rests as standard, which measures the position of the opened steady rest. This option is not available for the steady rest of Type SLZ-047. The proximity switch is not included in the delivery of the steady rest.

Control system of the clamping arms SLZ-HK

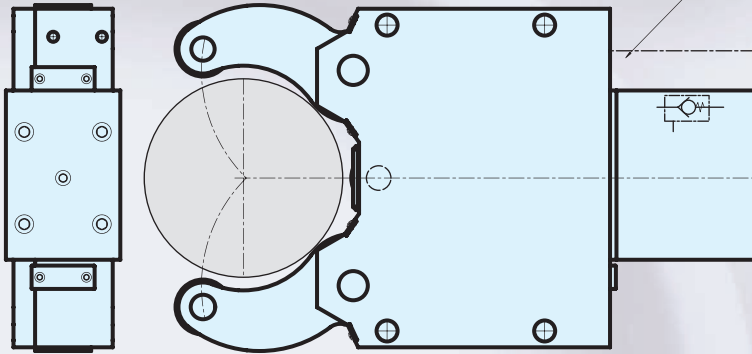


All steady rests of Type SLZ, SLZB, and SLZW can be equipped with holders and rods, or rod only, in order to be able to recognize the closed as well as the opened clamping arms with a proximity switch.

Accessories SLZ series

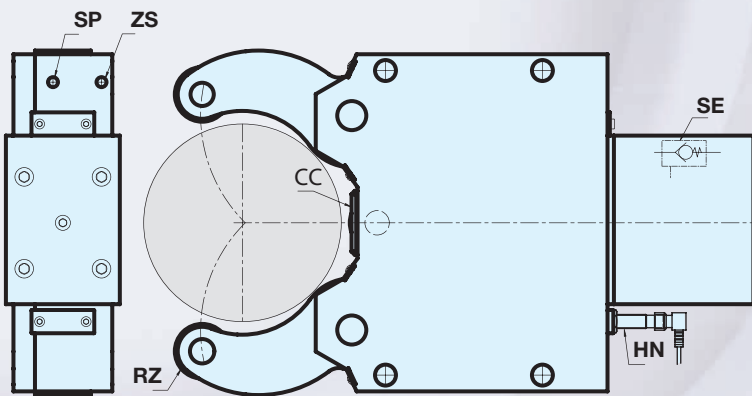
Safety valve SE

External attachment for SLZ-047 only (upon request)



All standard steady rests come equipped with a safety valve integrated in the cylinder. If the clamping pressure in the cylinder should be interrupted, the valve prevents the steady rest from opening. With following applications, the safety valve isn't necessary. This device is available as an option for the SLZ-047 series.

Standard configuration

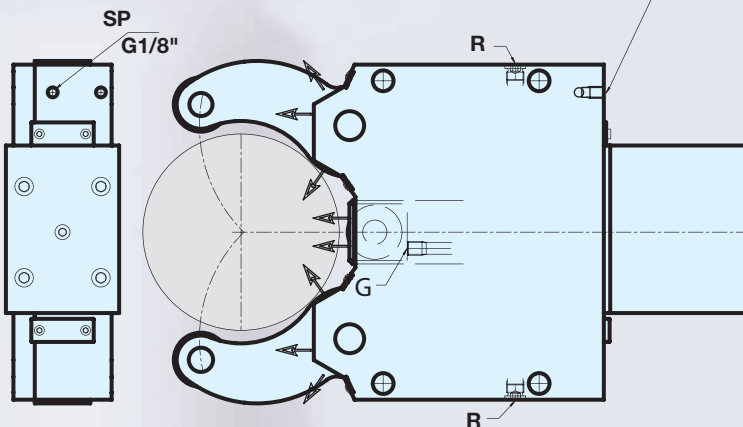


The standard steady rest is configured as follows:

- Cylindrical rollers
- Pressurization
- Central lubrication
- Axially extended cylinder with safety valve (except SLZ-047)
- Proximity switch component (open steady rest) HN
- Device for manual lubrication via grease cup or oiler

Pressurization

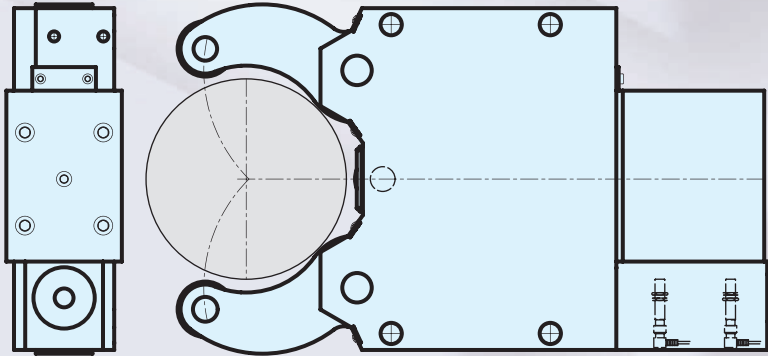
SP= Air purge connection G1/8" max 4 bar (58 psi)



All Röhm steady rests have a G 1/8" air purge connection. This system protects the body of the steady rest from chip and dust penetration. When the steady rest is completely open, the air consumption is automatically reduced, but not completely interrupted to prevent unnecessary air consumption. The system includes the cleaning of the middle roller bearings. To activate this option, the screw „G“, which is located in bottom of the housing, must be removed. The pressure may differ between a minimum of 2 bar and a maximum of 4 bar (58 psi). The steady rest can also be used without the air purge. Drain holes are on the top and bottom part of the steady rest housing. It is recommended that the lower of the two seals is released to allow the coolant to drain and to prevent penetration of contaminants into the body of the steady rest.

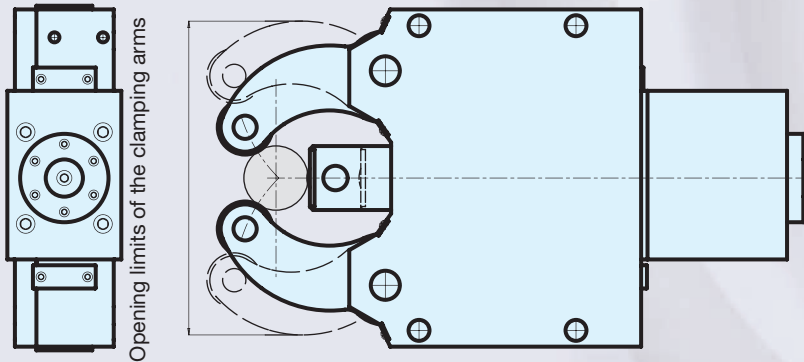
Accessories SLZ series

Control system of the clamping arms HK-IP5



This system allows the position of the clamping arms (open/closed on the workpiece) to be controlled via two proximity switches with O-ring seals (IP552), located in the housing. The proximity switch, which signals the closing of the steady rest during changing and the clamping diameter, is set with an external screw. The proximity switch and the bore must be considered by the customer.

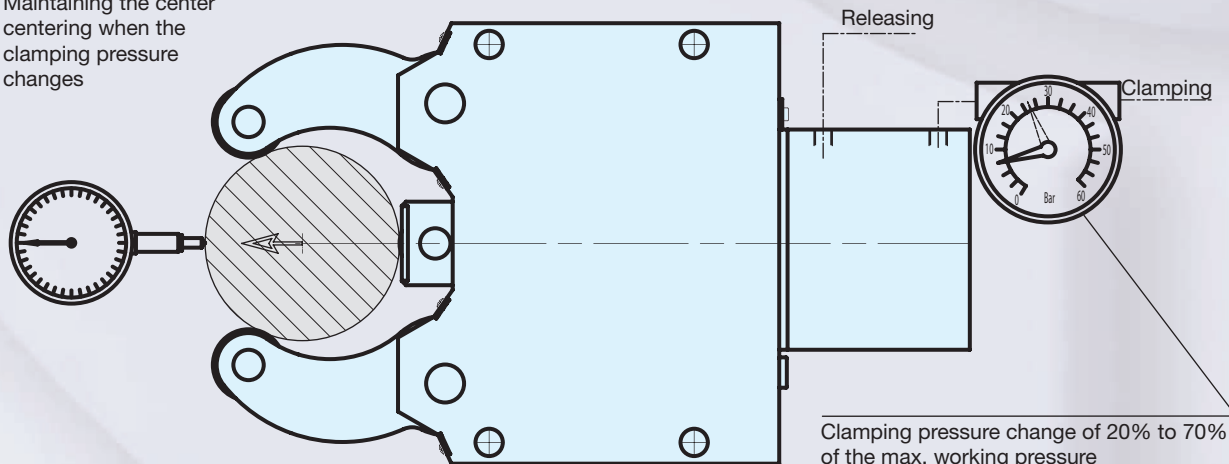
Regulation of the clamping arm opening system



Sometimes the opening of the clamping arms must be limited, e.g. to set the supporting roller diameter with the steady rest open or to limit the dimensions of the lateral clamping arms or to reduce the opening and closing times of the steady rest. Here, the „RAB“ cylinder (regulation of the clamping arm opening) can be used. The device limits the cylinder stroke to 75 % of the total stroke. Regulation is done manually. This device can be used with the steady rests of the SLZ and SLZB series. The device does not reduce the clamping range of the steady rest.

Compensation rod (on request)

Maintaining the center centering when the clamping pressure changes



Clamping pressure change of 20% to 70% of the max. working pressure

The steady rest is centered via operating pressure which is selected depending on the work to be done. The center of the workpiece is shifted according to the increasing/decreasing cylinder pressure, depending on the working conditions. The shifting of the workpiece center due to a pressure change is reduced by the patented system. See the table „Characteristicsof the steady rest series SLZ, SLZB and the SLZ heavy series.“

Brackets for steady rests SLZ/SLZB

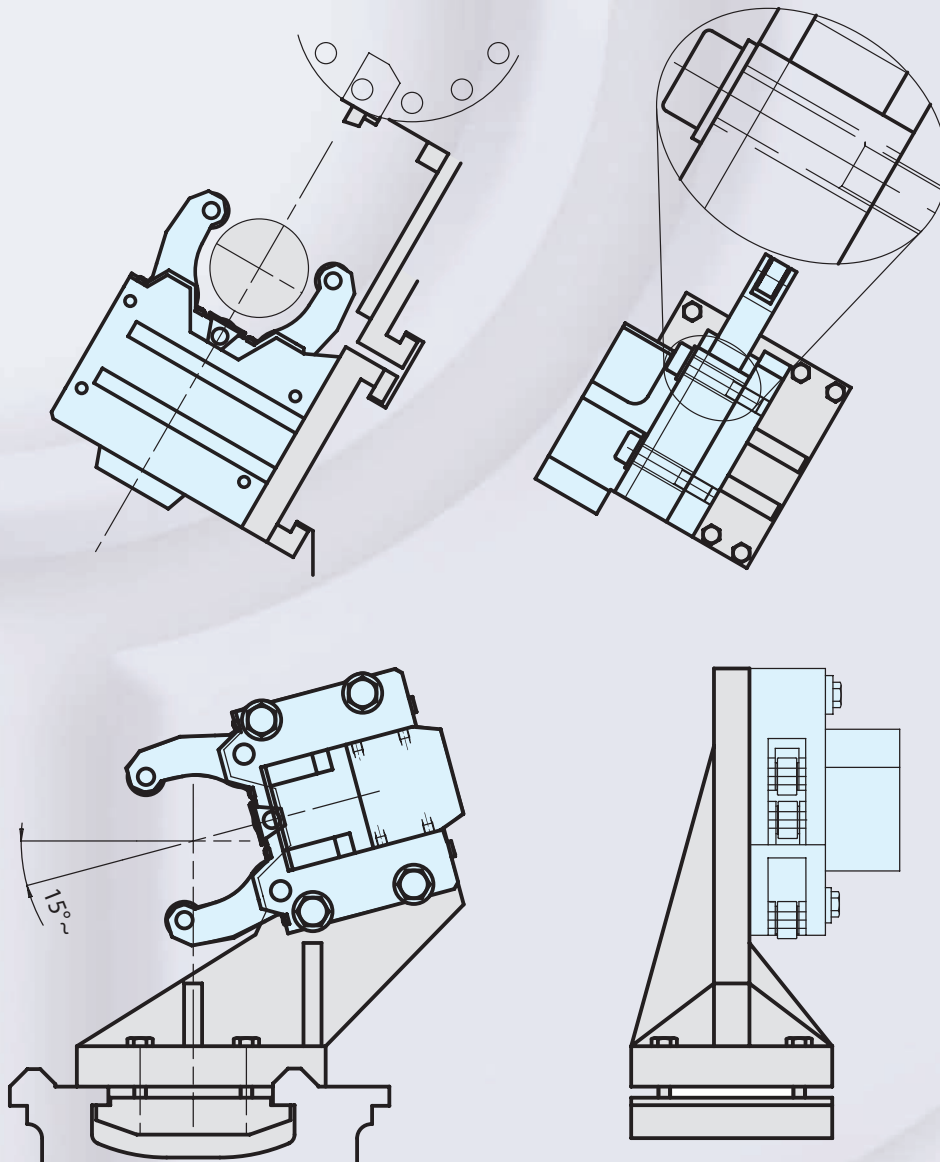
Precise steady rest function also depends on its stable and secure fastening to the lathe. The steady rest bracket must be made with corrugated, welded plates and meet the design standards.

The bracket design of the steady rest depends on the Typee of steady rest and the application:

- Space available
- Height of the turning center
- How the steady rest is used (fixed or following)
- Position angle of the steady rest in relation to the dimensions of the tools.

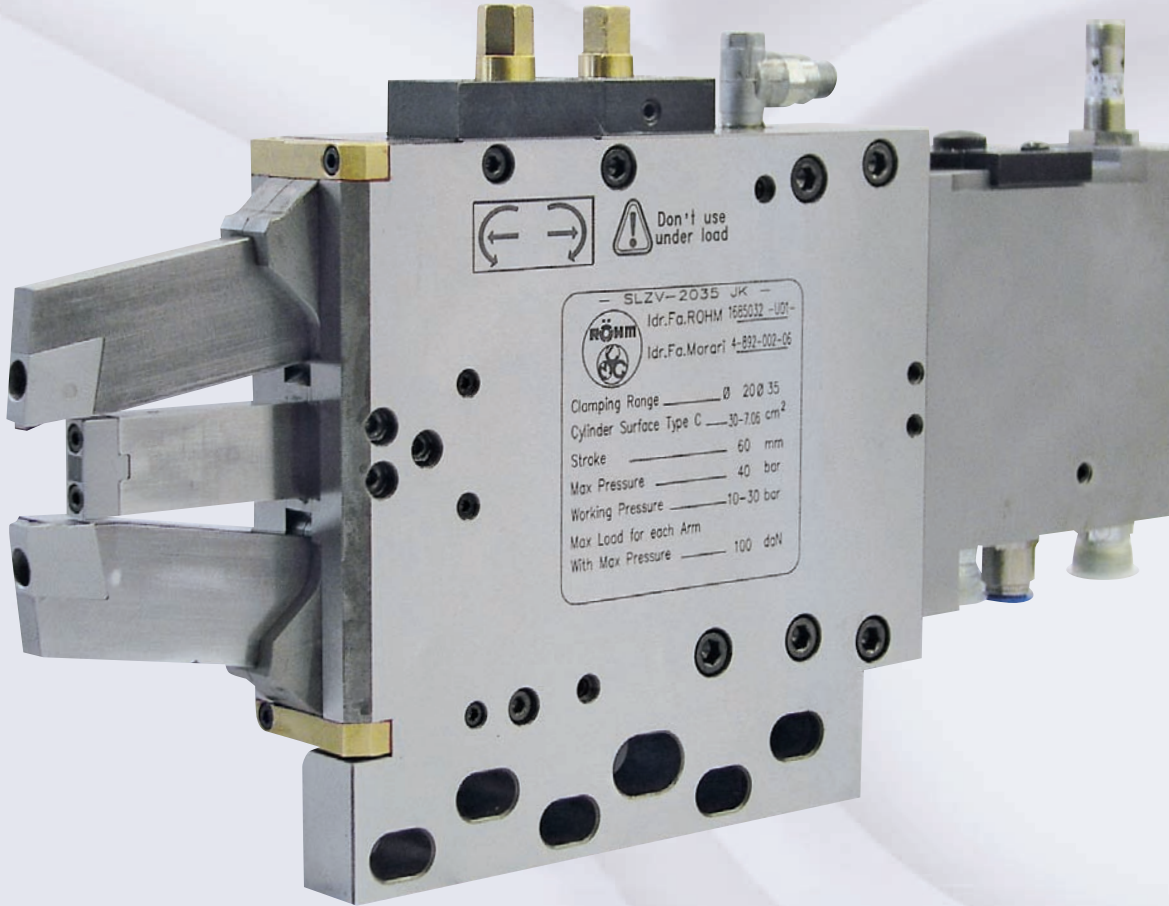
The mounting surface of the steady rest bracket must be absolutely flat in order not to distort the steady rest when fastening. The steady rest must be exactly centered along the X and Y axes of the lathe.

Max. deviation 0.01 mm.



Technical features/Application ranges SLZV

With retractable arms



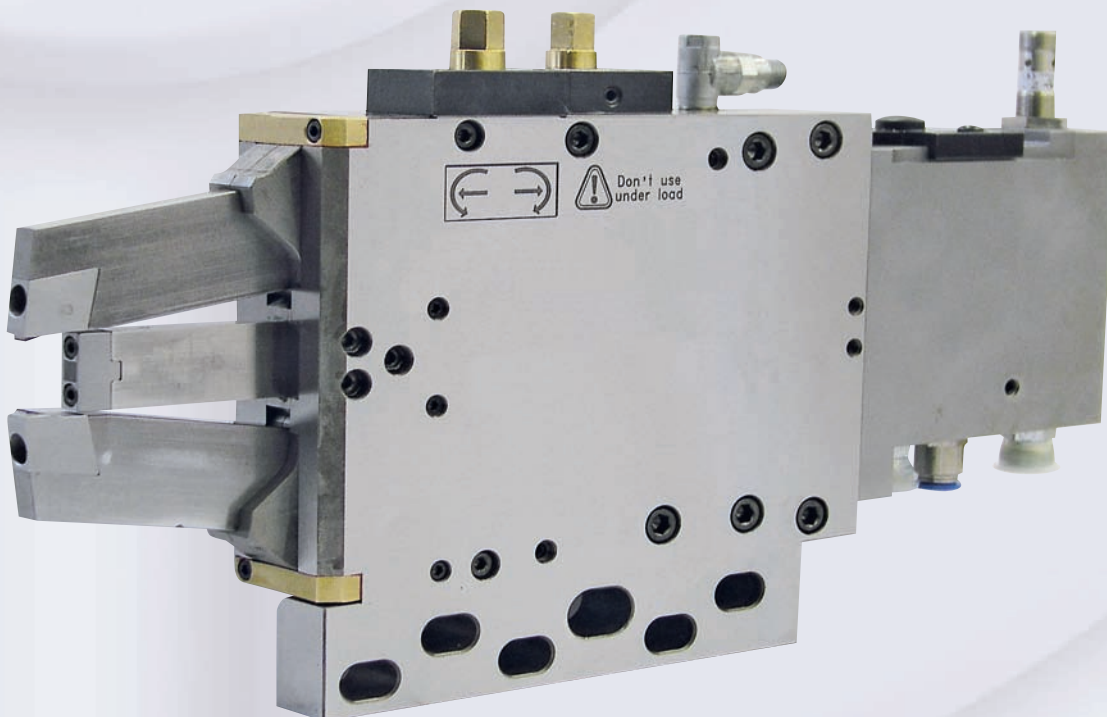
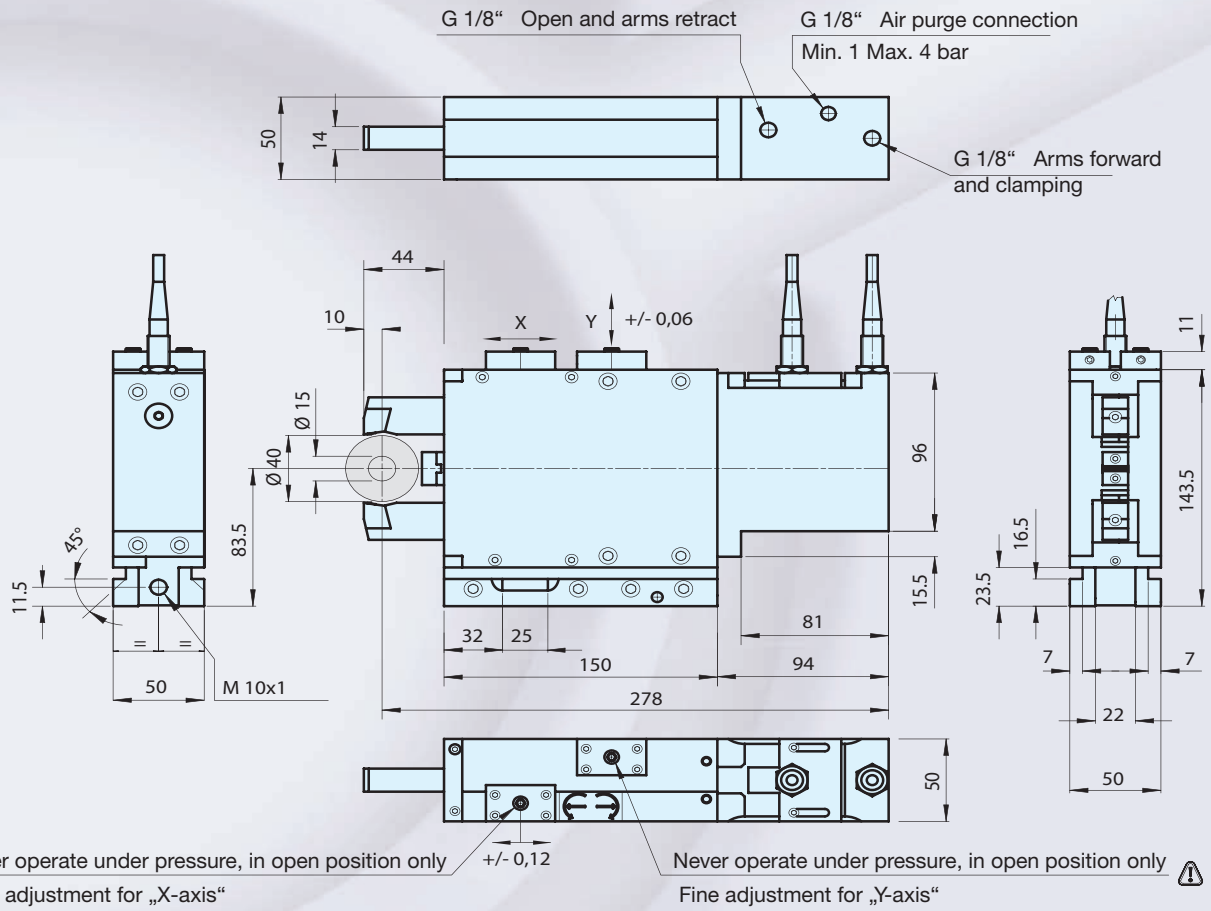
The main feature of the SLZV steady rest is that they can retract the arms inside the body, leaving the working area free and allowing, in this way, the loading of the pieces by automatic systems.

The minimum sizes, the high positioning and repeatability accuracy make this accessory the ideal tool for grinding operations on CNC-grinding machines. It can be used as a support for long shafts, for internal machining or when grinding on the clamping seat (follows the diameter).

The SLZV steady rest is equipped with a system for the fine adjustment in X and Y axis. It is generally manufactured with hard metal pads, but it can also be supplied with PKD (Diamond) pads, on request.

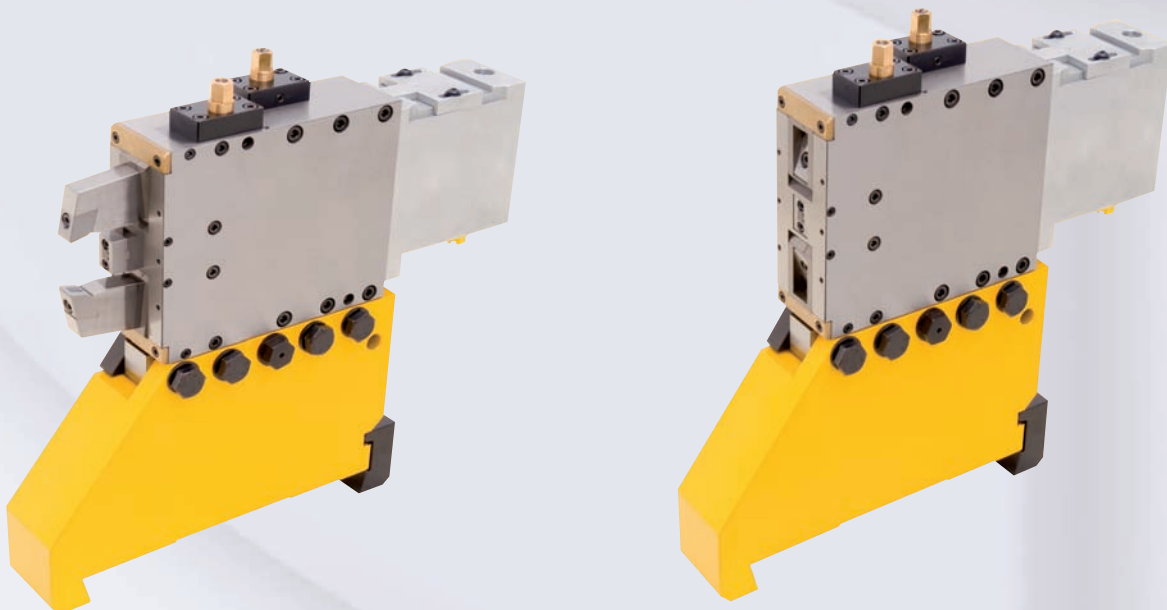
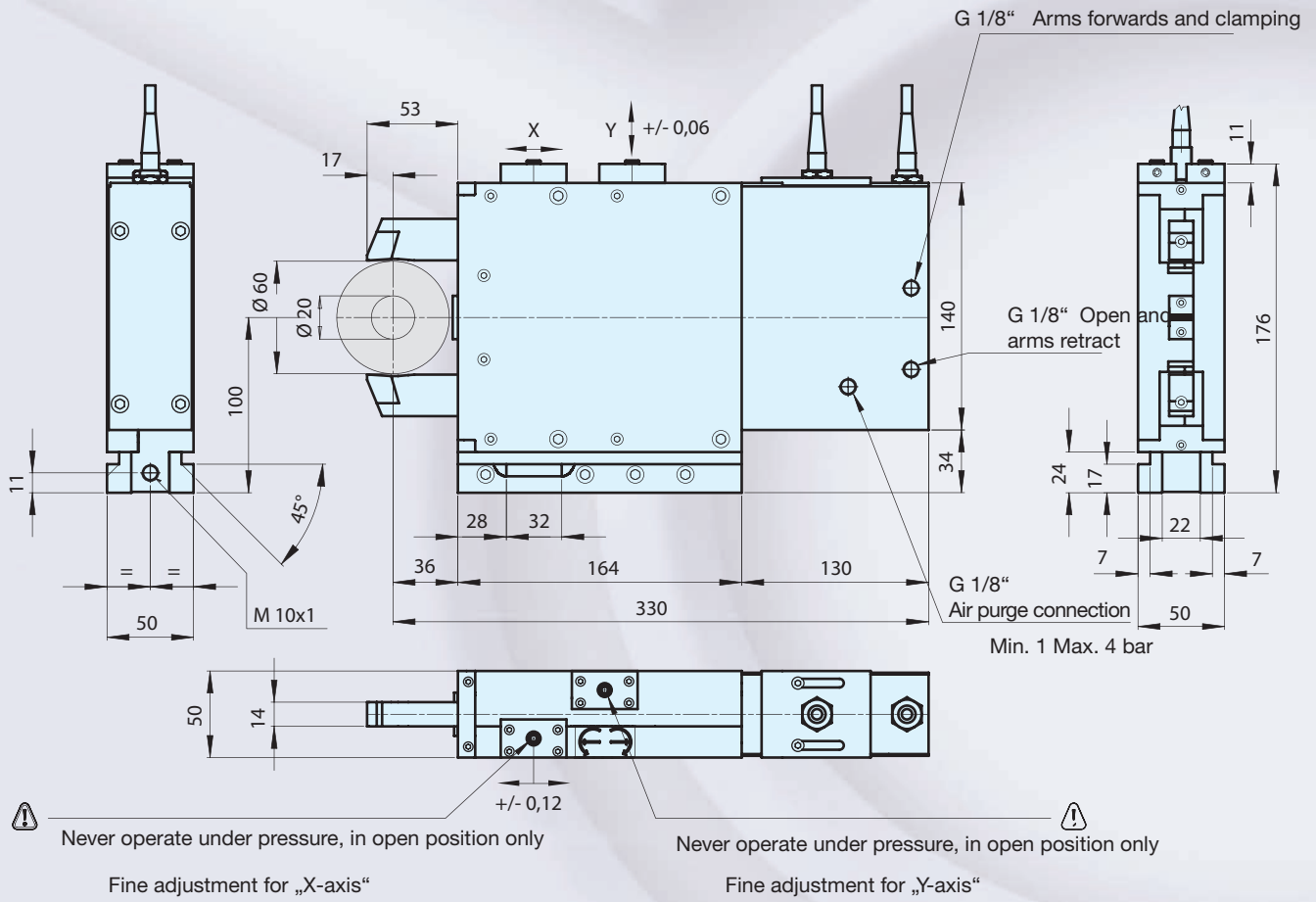
SLZV for grinders

Type: SLZV 1540



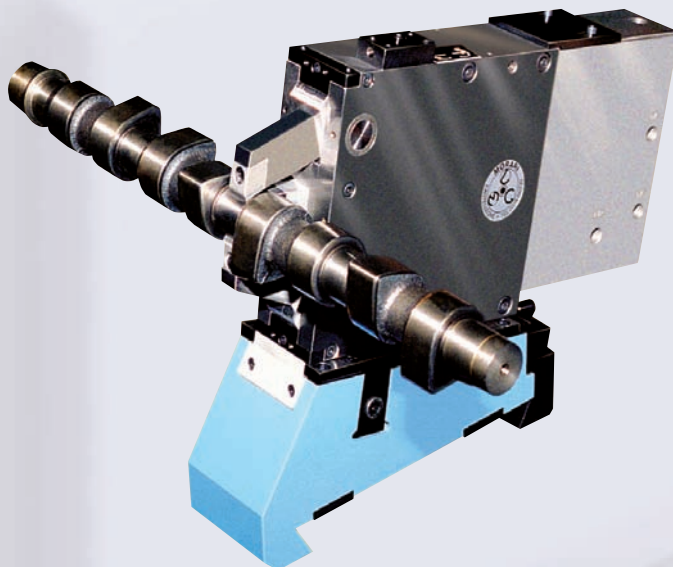
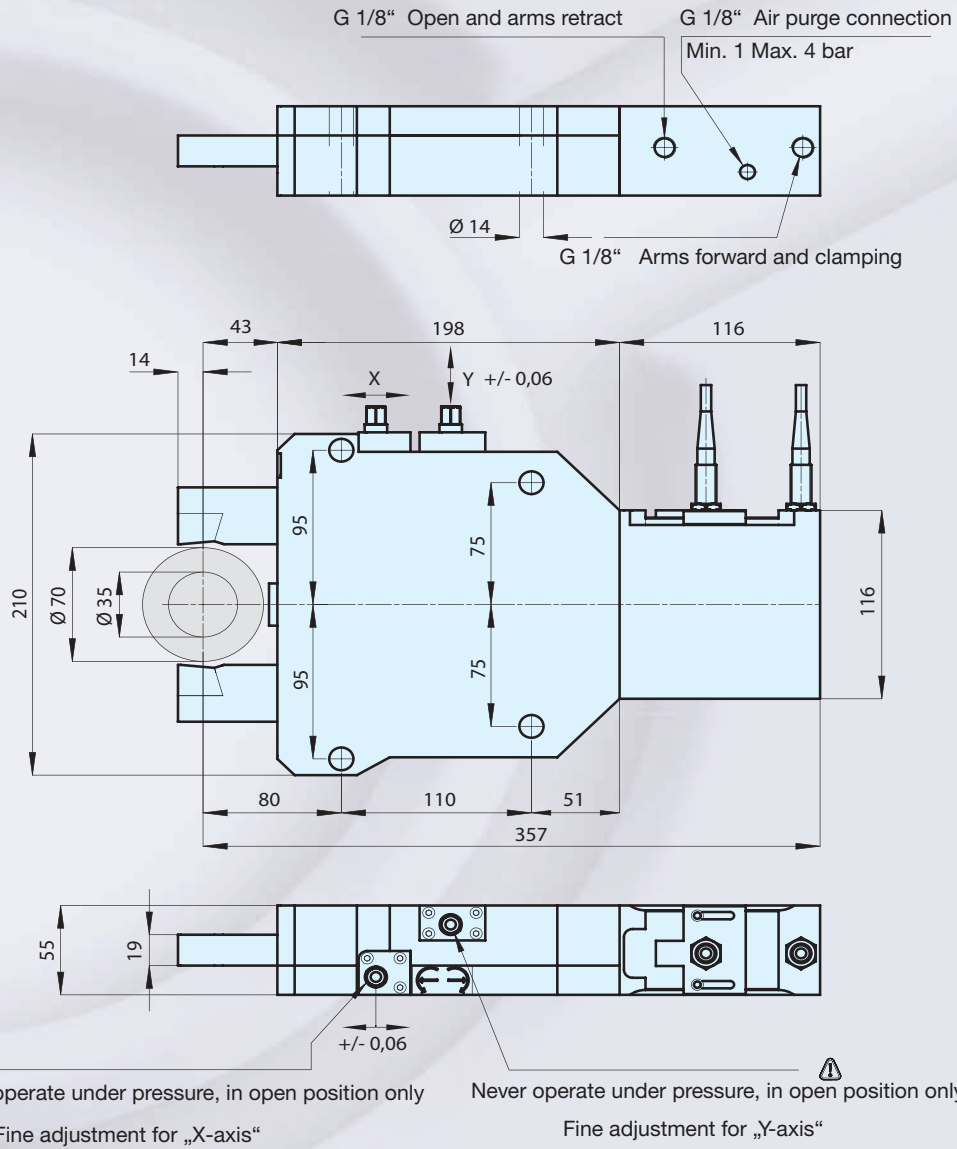
SLZV for grinders

Type: SLZV 2060



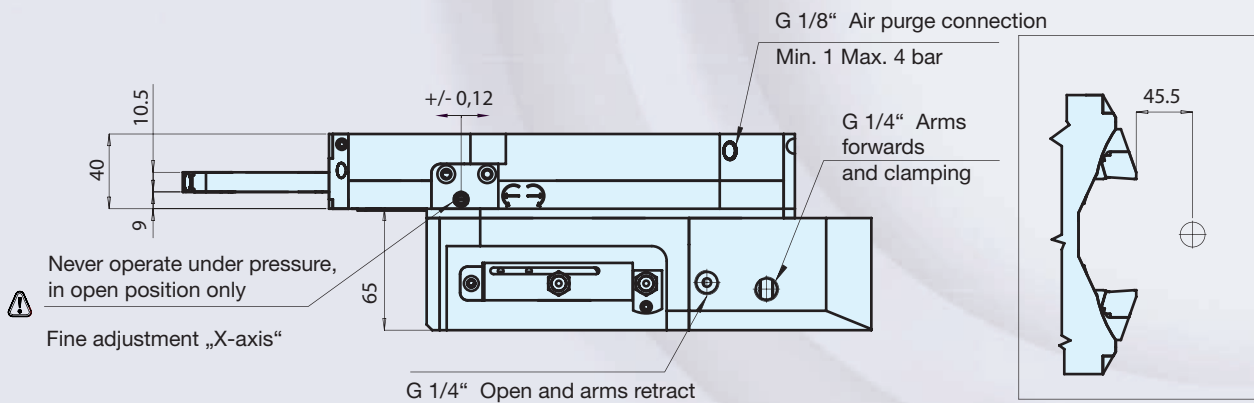
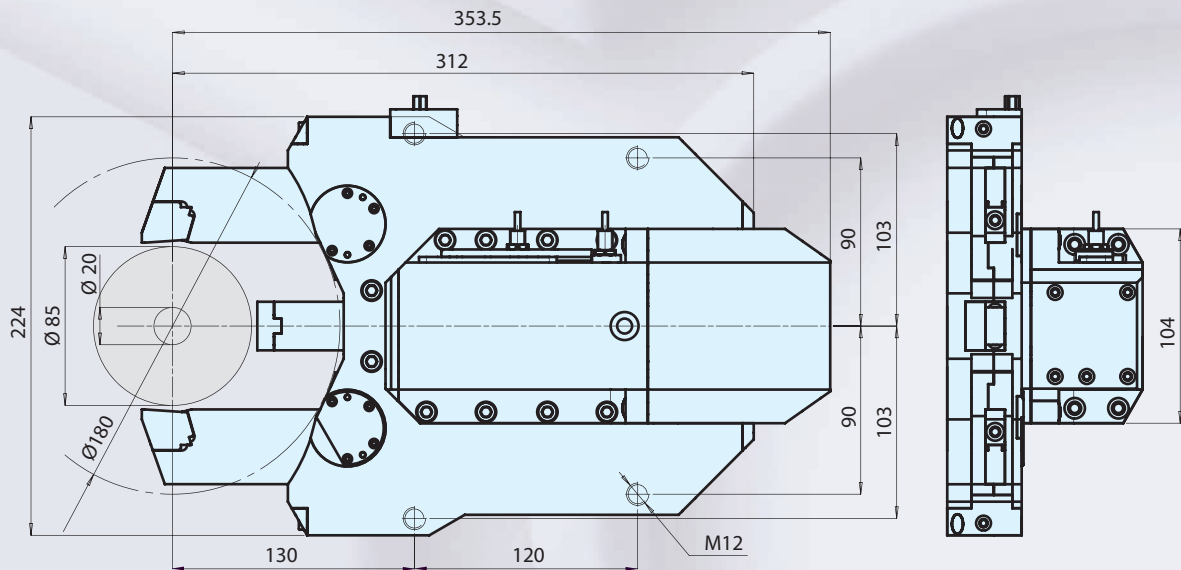
SLZV for grinders

Type: SLZV 4070



SLZV for grinders

Type: SLZ VB 2085/180



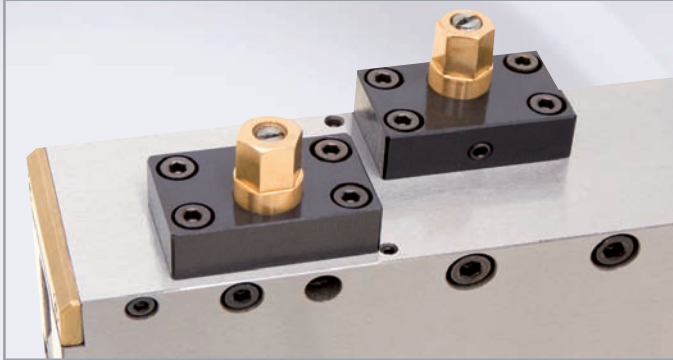
Technical features

Type	SLZV 1540	SLZV 2060	SLZV 4070	SLZ VB 2085/180	
Item no. with fine adjustment over X.axis	1685730	1685731	1685732	1685733	
Clamping diameter	mm	15 – 40	20 – 60	40 – 70	20 – 85
Cylinder-Type		C32 = 8 cm ²	C32 = 8 cm ²	C40 = 12 cm ²	-
Piston stroke	mm	59	76	85	-
Max. working pressure	bar	40	22	48	-
Operating pressure min.	bar	5 - 25	3 - 22	8 - 28	-
Clamping power per arm	N / bar	350 N / 15 bar	350 N / 15 bar	1100	-
Centering accuracy over whole range	mm	0,01	0,01	0,01	0,01
Repeatability at same clamping diameter and pressure	mm	0,002	0,002	0,002	0,002

SLZV for grinders

Self-centering steady rest for crankshaft grinding operations complete our SLZV series.

We develop and manufacture standard and special steady rests.



Main Features:

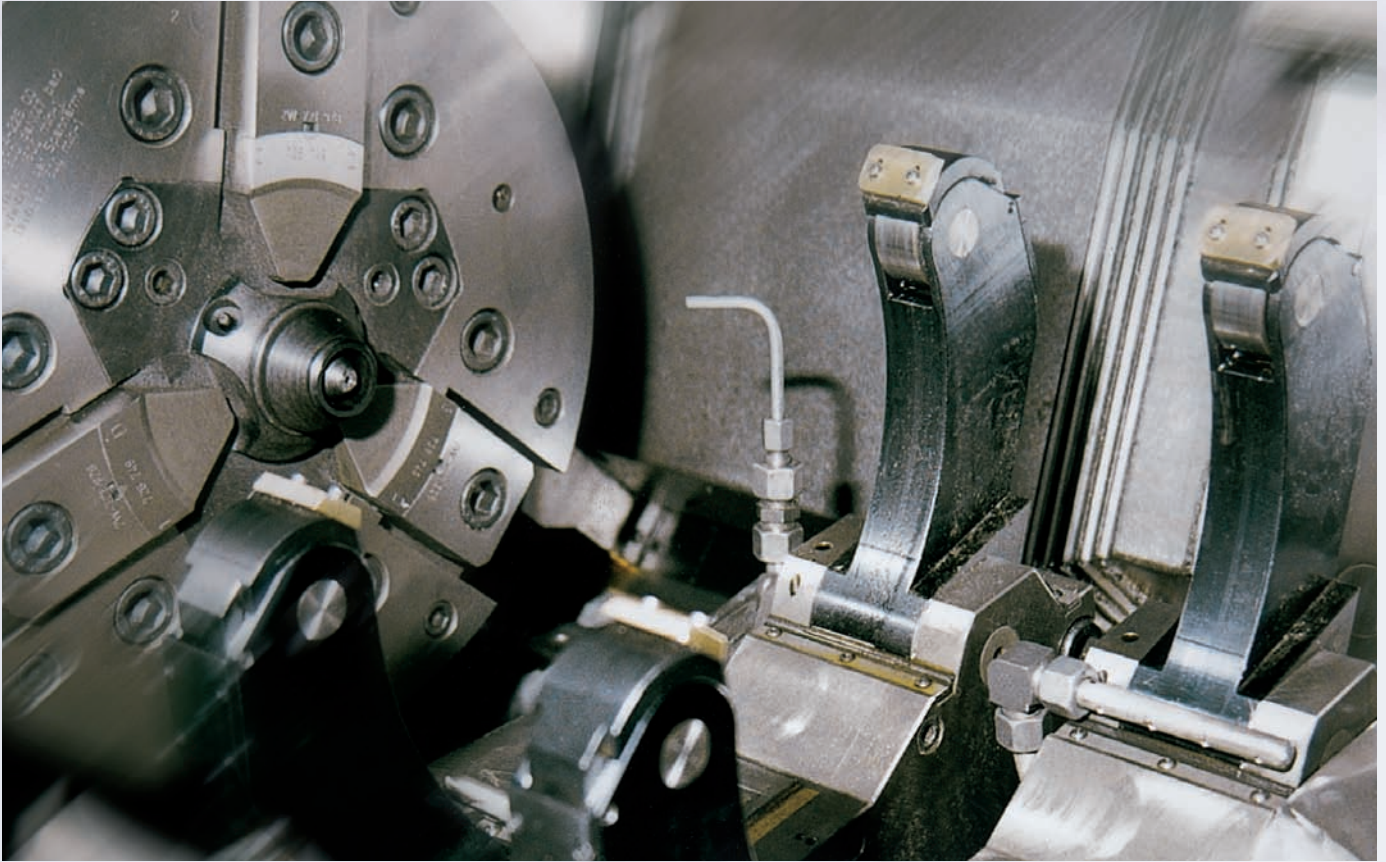
- Pads in hard metal (CBN) or PKD (Multicrystal Diamond) on request
- Hydraulic or pneumatic actuation
- High centering accuracy
- It allows grinding on the clamping seat
- High repeatability
- Opening and closing stroke control
- Compact and rigid design
- Special designs on customer's request

Micron-adjustment system for the precise adjustment of the centerline of the steady rest. This system guarantees an easy and quick set-up when more steady rests are used on the same workpiece. The control system of the closing and opening is standard on all the Types of steady rests.

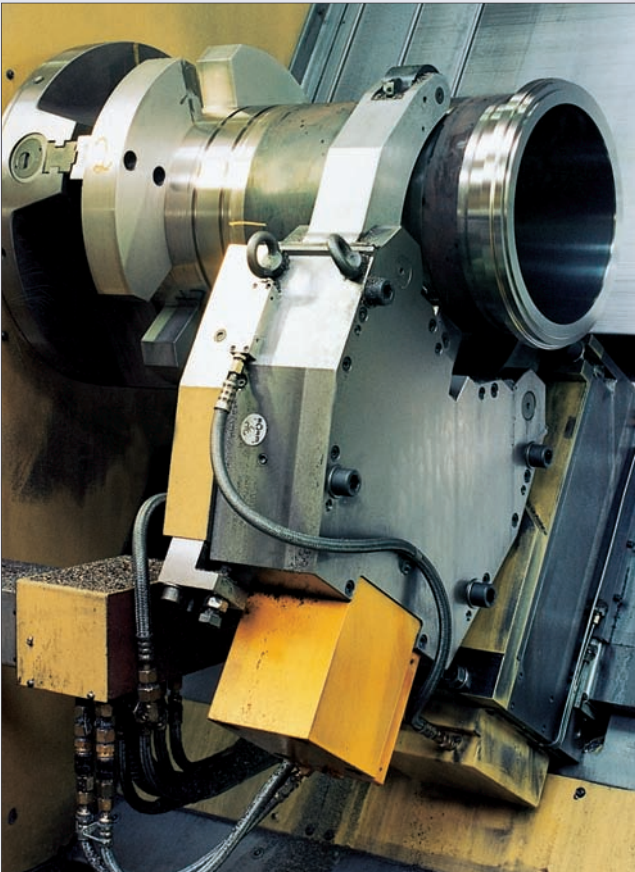
The hydraulic or pneumatic connections can be positioned on specific customer's request. It's recommended that pressure remains unchanged during operation.

Mounting examples

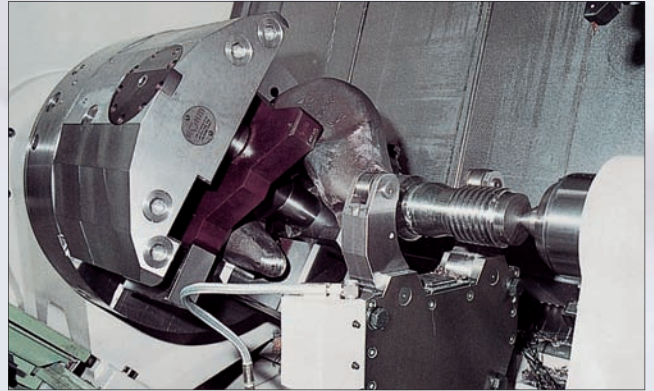
Reaming: crank shafts



Turning: sleeves



Turning: load hooks



Turning: adaptor cages

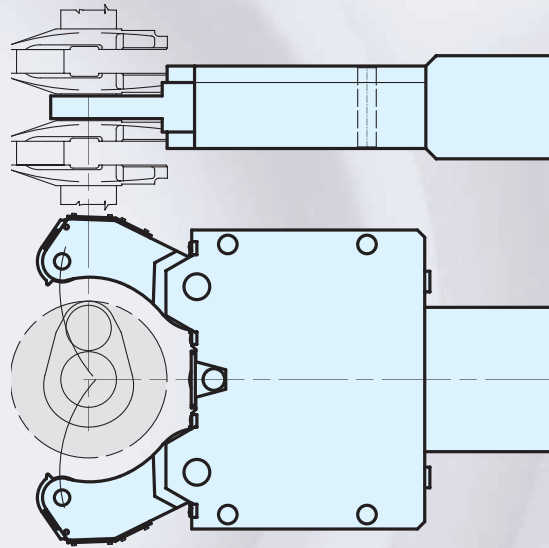


Special designs

Special steady rest for machining crankshafts

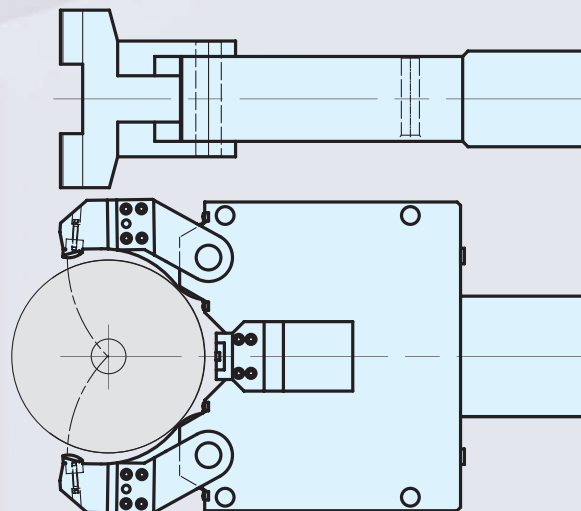
These steady rests are made upon request. Together with our customers, we construct the section of the clamping arms for supporting the workpiece individually according to the workpiece to be machined.

Due to years of development and experience in this area, the company Röhm is able to design special rollers with very slim sections, and therefore to design especially slim clamping arm sections.



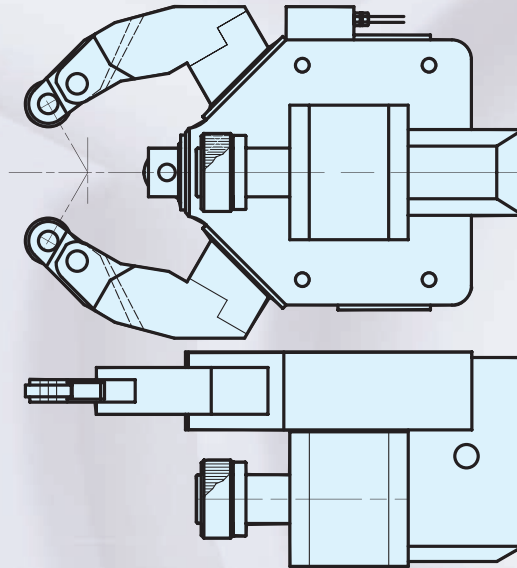
Special steady rest for milling wormshafts

These steady rests are made upon request. The width of the sliding jaws are designed together with our customers. Designed with increased rigidity, the lateral clamping arms and the middle guide rail are reinforced. Upon request, the steady rests can also be equipped with rinsing nozzles.

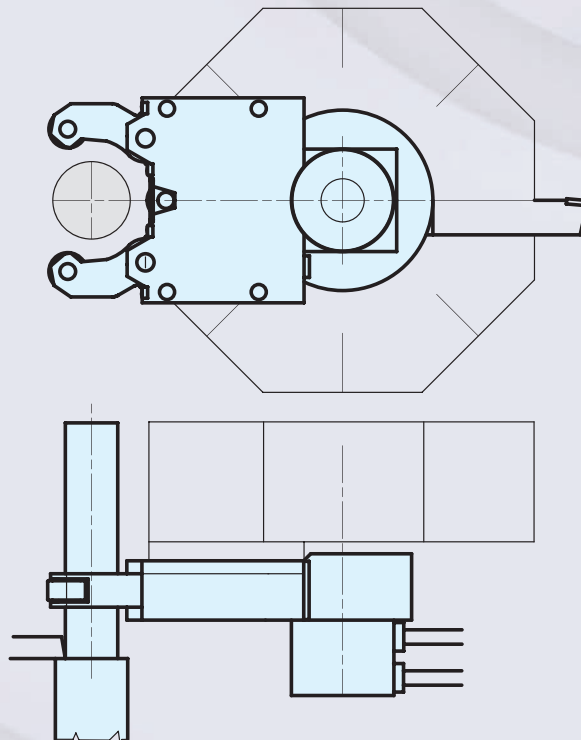


Special designs

Steady rests with swivel arms of the SL series with the vibrationdamping design, the roller holder diameters of which are not perfectly round, are used for machining „slender“ turn parts.



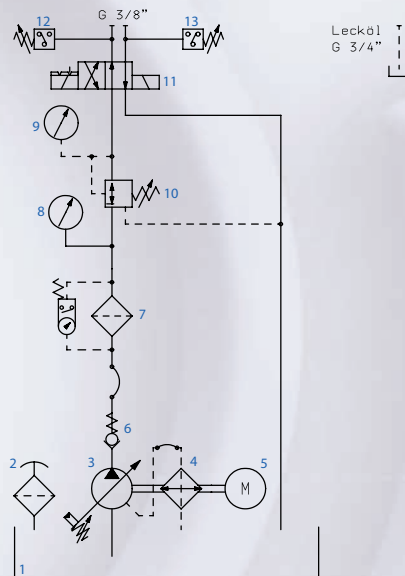
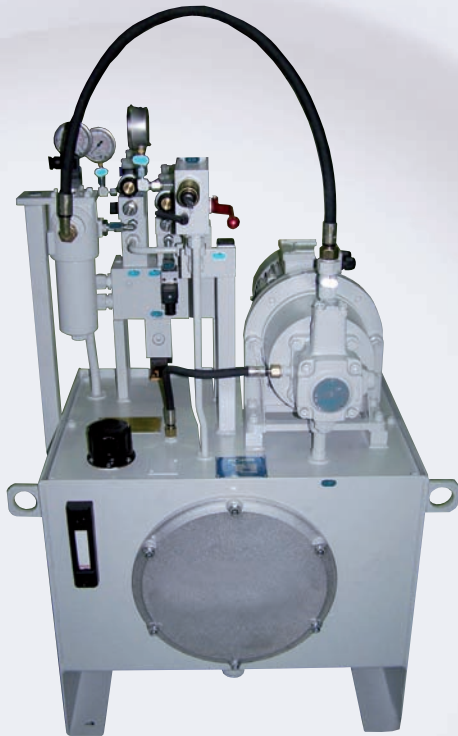
Steady rest with hydraulic rotary distributor which is mounted on the revolver.



Hydraulic power units

Standard power units

Hydraulic power units are required to produce the pressure needed to actuate hydraulic power chucking tools and cylinders. These power units are compact and equipped with electrically or manually operated control depending on the application.



Item no. 438384

Technical data:

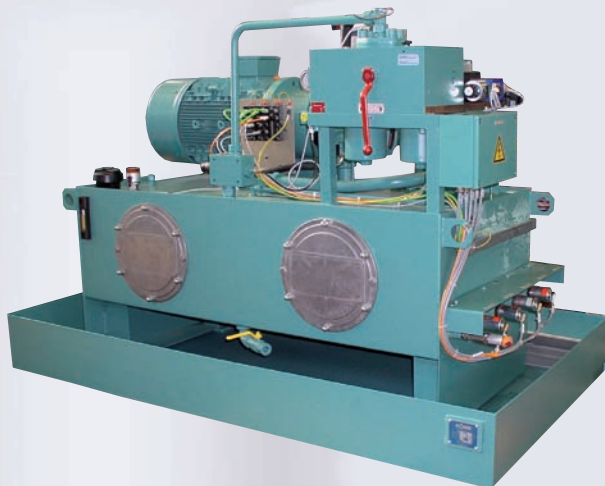
- 1** Oil reservoir 100 ltr.
- 2** Aerator
- 3** Self-regulating vane pump, Q = 19 l/min, p_{max.} = 80 bar
- 4** Pump carrier
- 5** Elektronic- Motor P = 2,2 kW, 230/400 V 50 Hz
- 6** Non-return-valve
- 7** Pressure filter, Fineness of filtration 10 µm absolut
- 8+9** Manometer 0-100 bar
- 10** Decompression valve, 5 – 80 bar adjustable
- 11** 4/2 Control valve NG 6 with detent 24 V DC
- 12+13** Pressure switch, 10 – 100 bar adjustable (für internal/ext. clamping)

Dimensions:

Length 640
Width 460
Height approx. 1000

Power units in special design

If desired, these hydraulic power units can be delivered wired, complete with terminal box or terminal box and protective motor switch.



Design variants:

- Complete hydraulic power units
- Control blocks

For such designs, the customer should specify:

- 1.** The number of connections or consuming devices (e.g. power chuck, tailstocks, steady rests etc.)
- 2.** The piston area and the stroke of the cylinder, the desired stroking time and the functional sequence as a basis for determining the required pump capacity.

LSG

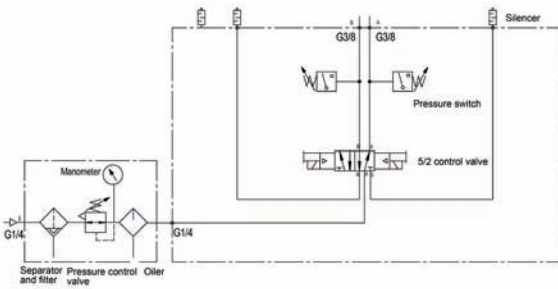


The air-operated control system LSG includes all components required for the control of rotary (LV, LVS, LT, LTS) or just stationary pneumatic cylinders.

If the directly machine control is not possible, an individual designed switchbox can be purchased from us.

Technical features:

- Combined maintenance unit
- 5/2 way solenoid valve
- pressure switch
- 5/2 way solenoid valve and pressure switch are wired on a clamping gib.



Tool group C 15
Type 592-38
**Air-operated control LSG R^{1/4}
up to 10 bar**, for air-operated
power chucks

Item no.	Width	Height	Depth	Control voltage	Conn. thread
437107	380	380	210	24V DC	R 3/8" internal
438208	380	380	210	110V - 50Hz	R 3/8" internal
438209	380	380	210	230V - 50Hz	R 3/8" internal

Other voltages on request



This unit consists of: Separator & filtre CKS-08/10, Pressure regulator CKS-08/10, Lubricator CL-08/10

Tool group C 15
Type 2250-H
Air line oiler & filter assemblies
at 6 bar and 1 bar pressure drop

Item no.	Width	Height	Depth	Max. flow
843603	130	240	105	51 Nm ³ /h
680999	130	240	102	33 Nm ³ /h

All parts of LWE are separately available

LSG

Tool group C 15
Type 592-32 **Manually operated
air control valve LHV**
2-position with safety control lever

Item no.	Width	Height	Depth	Conn. thread internal	Conn. thread external
418224	66,5	64	38	R 1/4 "	M 16 x 1,5



Tool group C 15
Type 592-04 **Air shut-off valve**

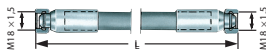
Item no.	Width	Height	Depth	Conn. thread
021237	51	55	30	R 1/4" innen

Accessories: 2 screw unions pipe thread 1/4", Id.-Nr. 8096



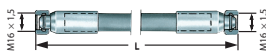
Tool group C 15
Type 591-01
**Hydraulic low-pressure hose
lines with end fittings**

Item no.	Length	Thread
021201	250	M18x1,5
021202	500	M18x1,5
021203	750	M18x1,5
021204	1000	M18x1,5
021205	1250	M18x1,5
021206	1500	M18x1,5
021207	1750	M18x1,5
021208	2000	M18x1,5
021209	2250	M18x1,5
021210	2500	M18x1,5
021211	3000	M18x1,5
021212	4000	M18x1,5



Tool group C 15
Type 592-00
Pneumatic connecting hoses
Rated pressure 12 bar

Item no.	Length
021241	250
021242	500
021243	750
021244	1000
021245	1200
021246	1500
021247	1750
021248	2000



Tool group C 15
Type 1310-Q
Double hand-control switch

Item no.	Contents of delivery
220629	piece



Tool group C 15
Type 1025-Q
Double foot-control switch

Item no.	Contents of delivery
249325	piece



Power operated



Particularly suitable for turning, copying and transfer machines with automatic infeed. Can also be used for milling and plain grinding machines by virtue of the solid centre.

For machining workpieces which are highly unbalanced, very heavy, and require substantial removal of material or irregular cutting, e.g. square billets, forged gear components, etc.

CoK Type 690-00

Clamping dia. 8-80 mm mechanically equalized, slip-on driving discs

CoK Type 690-50

Clamping dia. 50 -250 mm mechanically equalized, slip-on driving discs

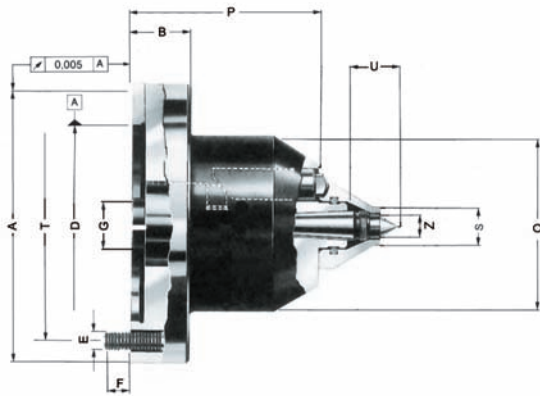
Longitudinal workpiece stop provided in centering.
Precise tripping to workpiece centre, particularly advantageous for consecutive machining, e.g. plunge-cut grinding, etc.

High precision concentricity by virtue of the solid centre even with continuous hard use.
 Minimal centering power even with maximum cutting load.

Drivers are pressed against the workpiece by power-operated means. Uniformed loading of the mechanically or hydraulically equalising drivers.
 No change in the longitudinal workpiece stop through regrinding of the driving cutters.
 Optimum cutter run-in during opposed copy-turning through bevelled driving heads.

All wearing parts are rapidly and easily replaced. The choice of clamping cylinder required depends upon the machine and workpiece conditions. As a rule size 105 suffices with the hydraulic actuating cylinders, size 150 with the pneumatic actuating cylinders.

CoK 8-80 mm



High precision concentricity due to fixed centre point.
Driving discs are pressed against the workpiece by power operated means.

Clamping circuit Ø 8-80 mm
Mechanically compensated
Longitudinal workpiece stop in the centre

Technical features:

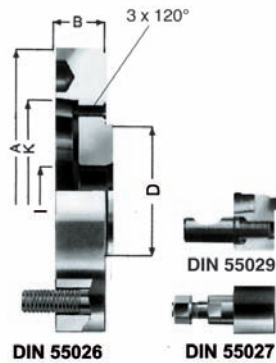
- high precision concentricity due to fixed centre point also under hard continuous operating conditions
- minimal centering power even with maximum cutting load
- workpiece weight max. 350 kg
- slip-on driving discs, solid centre

Tool group C15
Type 690-00 **basic body**
(without centre, without draw-off nut) CoK **mechanical**

Item no.	A	B	D	E	F	G	O	P	T	Z	Stroke Centres	Weight approx. g
313900	142	30	100	M 10	15	25	90	93	120	15	5	6500

Draw-off nut M 14x1,5 item-no. 089229

Adapter plate CoK

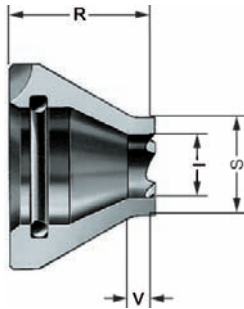


Tool group A14
Type 688-87
Adapter Plate **short taper**

Item no.	Design	Taper	A	B	D	I	K	Weight approx. kg
088485	DIN 55026	5	140	30	100	38	82,563	3,1
088486	DIN 55026	6	167	35	100	38	106,39	4,8
088487	DIN 55026	8	216	40	100	38	139,735	8,7
088488	DIN 55026	11	280	45	100	38	196,885	17
088480	DIN 55027	5	140	30	100	38	82,563	3,1
088481	DIN 55027	6	167	35	100	38	106,39	4,8
088482	DIN 55027	8	216	40	100	38	139,735	8,7
088483	DIN 55027	11	280	45	100	38	196,885	17
088495	DIN 55029	5	140	30	100	38	82,563	3,1
088496	DIN 55029	6	167	35	100	38	106,39	4,8
088497	DIN 55029	8	216	40	100	38	139,735	8,7
088498	DIN 55029	11	280	45	100	38	196,885	17

Accessories CoK

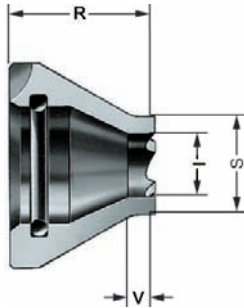
Tool group A14
Type 680-10 **Driving discs**, toothed
right-hand rotation



Item no.	Clamping circuit Ø S	Approx. turning range	l	R	V	Matching center point Ø Y	Weight approx. g
088061	8	9-16	4,5	38	4	4	150
088062	10	11-20	4,5	38	4	4	180
088063 ¹⁾	12	13-24	7	36	4	6	160
088064 ¹⁾	16	17-32	11	33	4	10	160
088065 ¹⁾	20	21-40	13	30	4	12	200
088066	25	26-50	17	30	8	12	170
088067	32	33-64	22	30	10	16	190

¹⁾ Driving discs with carbide tothing on request

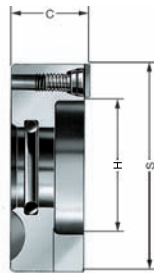
Tool group A14
Type 680-20 **Driving discs**, toothed
left-hand rotation



Item no.	Clamping circuit Ø S	Approx. turning range	l	R	V	Matching center point Ø Y	Weight approx. g
088081	8	9-16	4,5	38	4	4	150
088082	10	11-20	4,5	38	4	4	180
088083 ¹⁾	12	13-24	7	36	4	6	160
088084 ¹⁾	16	17-32	11	33	4	10	160
088085 ¹⁾	20	21-40	13	30	4	12	200
088086	25	26-50	17	30	8	12	170
088087	32	33-64	22	30	10	12	190

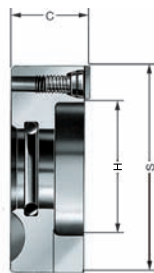
¹⁾ Driving discs with carbide tothing on request

Tool group A14
Type 680-12 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2 which can be used on 4 sides
right-hand rotation



Item no.	Clamping circuit Ø S	Approx. turning range	H	C	Matching center point Ø Y	Weight approx. g
088068	40	41-80	20	24	16	600
088069	50	51-100	28	24	16	240
088070	63	64-126	41	24	16	400
088071	80	81-160	58	24	16	600

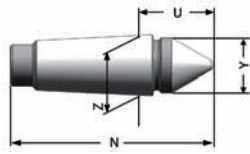
Tool group A14
Type 680-22 **Driving discs**, with interchangeable hard metal driving plates 6 x 3,2 which can be used on 4 sides
left-hand rotation



Item no.	Clamping circuit Ø S	Approx. turning range	H	C	Matching center point Ø Y	Weight approx. g
088088	40	41-80	20	24	16	600
088089	50	51-100	28	24	16	240
088090	63	64-126	41	24	16	400
088091	80	81-160	58	24	16	600

Accessories CoK

Tool group C15
Type 689-40 **Centres, CoK**



Item no.	Clamping circuit Ø	N	U	Y	Z	Workpiece weight max. kg	Weight approx. g
088121	8-10	67,5	28	4	15	25	55
088122	12	67	28	6	15	75	55
088123	16	67	28	10	15	150	55
088124	20-32	64	25	12	15	250	55
085002	40-80	60	21	M 14x1,5	15	350	55

Tool group A14
Type 680-90 **Hard metal driving plates**
right- or left-hand rotation



Item no.	Size	Clamping circuit Ø	Weight approx. g
088209	9,5x3,2	40-80	4

Tool group A14
Type 680-93 **Hard metal driving plates**
right- and left-hand rotation



Item no.	Size	Clamping circuit Ø	Weight approx. g
087931	9,5x3,2	40-80	4

Tool group C15
Typ 680-90 **Clamping spindle**



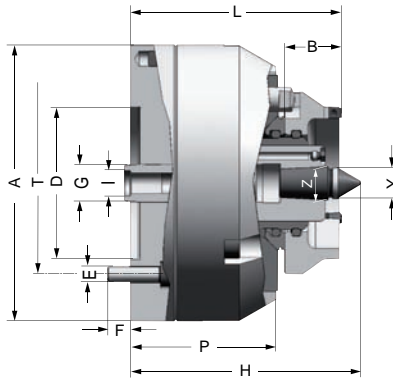
Item no.	Size	Clamping circuit Ø	Weight approx. g
088205	M 5 x 8	40-80	2

Tool group C15
Type 5191-Y
O-ring



Item no.	Size
006252	21,82x3,53

CoK 50-250 mm



High precision concentricity due to fixed centre point.
Driving discs are pressed against the workpiece by power operated means.

Clamping circuit Ø 50-250 mm
Mechanically compensated
Longitudinal workpiece stop in the centre

Technical features:

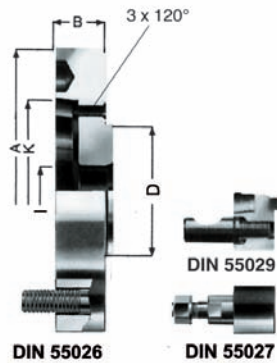
- high precision concentricity due to fixed centre point also under hard continuous operating conditions
- minimal centering power even with maximum cutting load
- workpiece weight max. 500 kg
- slip-on driving discs, solid centre

Tool group C15
Type 690-50
Power-operated driving head
with centre
Mechanically compensated

Item no.	A	D	E	F	G	H	I	L	P	R	T	Y	Z	Weight approx. kg
689085	182	100	M 10	15	25	154	16	max 150 min 134	96	38	120	M 20x1,5	22	18

Draw-off nut M 20x1,5 item-no. 089302

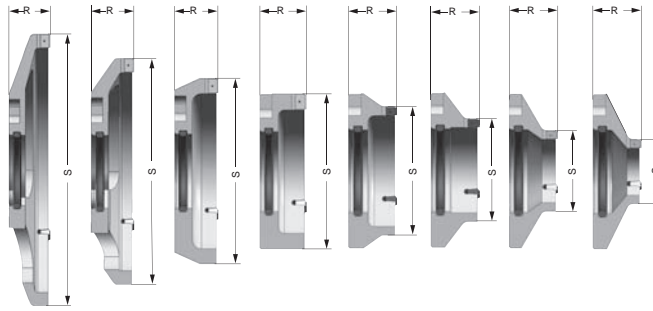
Adapter plate CoK



Tool group A14
Type 688-87
Adapter Plate **short taper**

Item no.	Design	Taper	A	B	D	I	K	Weight approx. kg
088485	DIN 55026	5	140	30	100	38	82,563	3,1
088486	DIN 55026	6	167	35	100	38	106,39	4,8
088487	DIN 55026	8	216	40	100	38	139,735	8,7
088488	DIN 55026	11	280	45	100	38	196,885	17
088480	DIN 55027	5	140	30	100	38	82,563	3,1
088481	DIN 55027	6	167	35	100	38	106,39	4,8
088482	DIN 55027	8	216	40	100	38	139,735	8,7
088483	DIN 55027	11	280	45	100	38	196,885	17
088495	DIN 55029	5	140	30	100	38	82,563	3,1
088496	DIN 55029	6	167	35	100	38	106,39	4,8
088497	DIN 55029	8	216	40	100	38	139,735	8,7
088498	DIN 55029	11	280	45	100	38	196,885	17

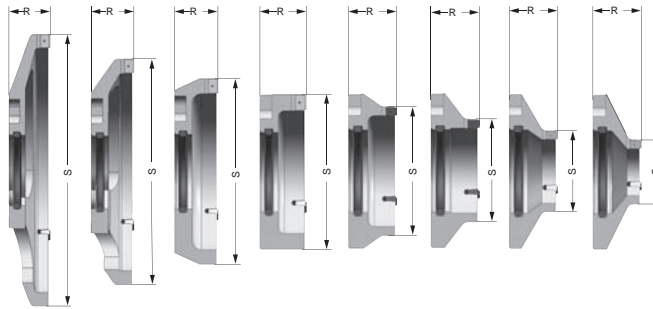
Driving discs CoK



Tool group A14
Type 687-13 **Driving discs**
with interchangeable hard metal
driving plates
right-hand rotation

Item no.	Clamping circuit Ø S	R	Hard metal driving plate	Weight approx. g
689461	50	48	6 x 5T	1400
689462	63	45	6 x 5T	1500
689463	80	38	6 x 5T	1500
689464	100	38	6 x 5T	1400
689465	125	38	12 x 5T	1800
689466	160	38	12 x 5T	2500
689467 ¹⁾	200	38	12 x 5T	2500
689468 ¹⁾	250	38	12 x 5T	3200

¹⁾ Weight reduced



Tool group A14
Type 687-23 **Driving discs**
with interchangeable hard metal
driving plates
left-hand rotation

Item no.	Clamping circuit Ø S	R	Hard metal driving plate	Weight approx. g
689371	50	48	6 x 5T	1400
689372	63	45	6 x 5T	1500
689093	80	38	6 x 5T	1500
689094	100	38	6 x 5T	1400
689095	125	38	12 x 5T	1800
689096	160	38	12 x 5T	2500
689097 ¹⁾	200	38	12 x 5T	2500
689098 ¹⁾	250	38	12 x 5T	3200

¹⁾ Weight reduced

Accessories CoK

Tool group A14
Type 680-90 **Hard metal driving plates**
right- or left-hand rotation



Item no.	Size	Weight approx. g
312675	6 x 5 T	3
312911	12 x 5 T	6

Tool group C15
Type 0167-Y
Threaded pin



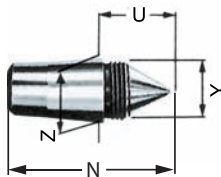
Item no.	Size	Weight approx. g
048205	M 5 x 8	1
036461	M 5 x 10	1

Tool group C15
Type 5191-Y
O-ring



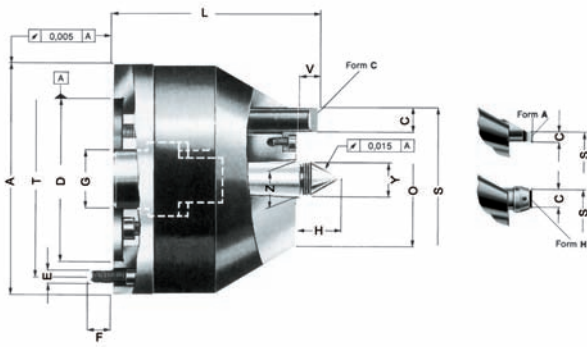
Item no.	Size
006283	59,69x5,33

Tool group C15
Type 689-40 **Centres, CoK**



Item no.	N	U	Y	Z	Weight approx. g
313621	54	24	M 20x1,5	22	112

Power-operated Driving Heads CoK



CoK, for hard continuous operating conditions.

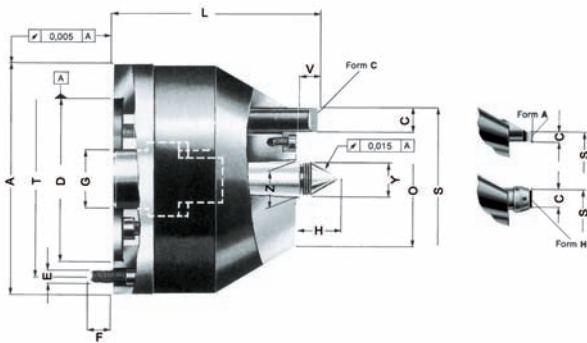
Bolt on power-operated face driver heads, hydraulically compensated with interchangeable driving pins. Driving pins can be changed to allow right-hand and left-hand rotation.

Technical features:

- max. compensating range of driving pins approx. 8 mm
- nominal value for max. loading approx. 4000 daN
- max. workpiece weight 800 kg
- **On request:** power-operated Face Driving Head CoK mechanically compensated and special designs

Tool group C15
Type 689-10
Power-operated Face Driving Head
**size 1 CoK; hydraulic
right-hand rotation**

Item no.	S	Approx. turning range	A	C	D	E	F	G	H	L	O	T	V	Y	Z	Pin	Weight approx. kg
088441	63	65-125	142	6	100	M 10	15	35	26	138 max. 143	72	120	16 max. 21	M 20x1,5	22	16 A	12
088442	75	80-150	142	9,5	100	M 10	15	35	26	138 max. 143	72	120	16 max. 21	M 20x1,5	22	16 H	12
088443	80	82-160	142	14,5	100	M 10	15	35	26	138 max. 143	72	120	16 max. 21	M 20x1,5	22	16 C	12



CoK, for hard continuous operating conditions.

Bolt on power-operated face driver heads, hydraulically compensated with interchangeable driving pins. Driving pins can be changed to allow right-hand and left-hand rotation.

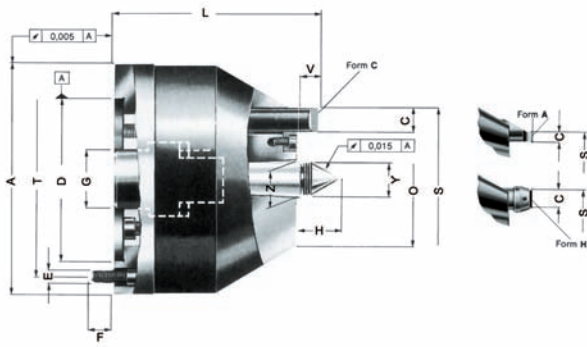
Technical features:

- max. compensating range of driving pins approx. 8 mm
- nominal value for max. loading approx. 4000 daN
- max. workpiece weight 800 kg
- **On request:** power-operated Face Driving Head CoK mechanically compensated and special designs

Tool group C15
Type 689-10
Power-operated Face Driving Head
**size 2 CoK; hydraulic
right-hand rotation**

Item no.	S	Approx. turning range	A	C	D	E	F	G	H	L	O	T	V	Y	Z	Pin	Weight approx. kg
088444	83	85-165	142	6	100	M 10	15	35	26	138 max. 143	92	120	16 max. 21	M 20x1,5	22	16 A	13
088445	95	100-190	142	9,5	100	M 10	15	35	26	138 max. 143	92	120	16 max. 21	M 20x1,5	22	16 H	13
088446	100	102-200	142	14,5	100	M 10	15	35	26	138 max. 143	92	120	16 max. 21	M 20x1,5	22	16 C	13

Power-operated Driving Heads CoK



CoK, for hard continuous operating conditions.

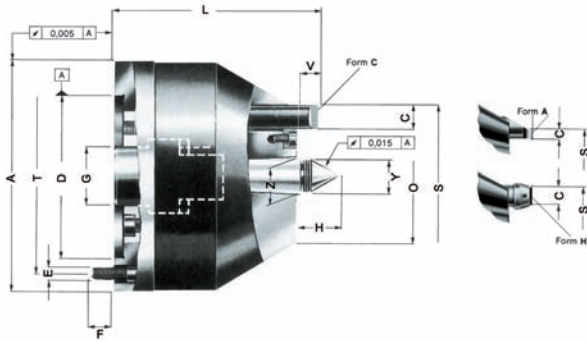
Bolt on power-operated face driver heads, hydraulically compensated with interchangeable driving pins. Driving pins can be changed to allow right-hand and left-hand rotation.

Technical features:

- max. compensating range of driving pins approx. 8 mm
- nominal value for max. loading approx. 4000 daN
- max. workpiece weight 800 kg
- **On request:** power-operated Face Driving Head CoK mechanically compensated and special designs

Tool group C15
Type 689-10
Power-operated Face Driving Head
**size 3 CoK; hydraulic
right-hand rotation**

Item no.	S	Approx. turning range	A	C	D	E	F	G	H	L	O	T	V	Y	Z	Pin	Weight approx. kg
088447	108	100-215	152	6	100	M 10	15	35	26	138 max. 143	117	120	16 max. 21	M 20x1,5	22	16 A	16
088448	120	125-240	152	9,5	100	M 10	15	35	26	138 max. 143	117	120	16 max. 21	M 20x1,5	22	16 H	16
088449	125	127-250	152	14,5	100	M 10	15	35	26	138 max. 143	117	120	16 max. 21	M 20x1,5	22	16 C	16



CoK, for hard continuous operating conditions.

Bolt on power-operated face driver heads, hydraulically compensated with interchangeable driving pins. Driving pins can be changed to allow right-hand and left-hand rotation.

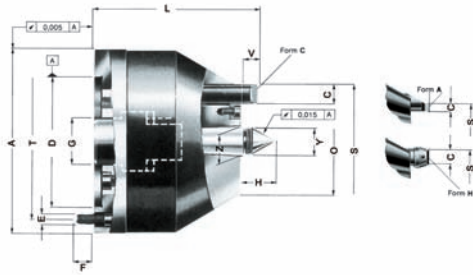
Technical features:

- max. compensating range of driving pins approx. 8 mm
- nominal value for max. loading approx. 4000 daN
- max. workpiece weight 800 kg
- **On request:** power-operated Face Driving Head CoK mechanically compensated and special designs

Tool group C15
Type 689-10
Power-operated Face Driving Head
**size 4 CoK; hydraulic
right-hand rotation**

Item no.	S	Approx. turning range	A	C	D	E	F	G	H	L	O	T	V	Y	Z	Pin	Weight approx. kg
088450	143	145-285	182	6	100	M 10	15	35	26	138 max. 143	152	120	16 max. 21	M 20x1,5	22	16 A	23
088451	155	160-310	182	9,5	100	M 10	15	35	26	138 max. 143	152	120	16 max. 21	M 20x1,5	22	16 H	23
088452	160	162-320	182	14,5	100	M 10	15	35	26	138 max. 143	152	120	16 max. 21	M 20x1,5	22	16 C	23

Power-operated Driving Heads CoK



CoK, for hard continuous operating conditions.

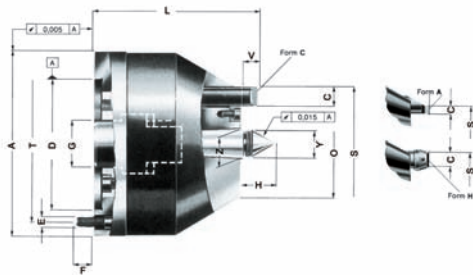
Bolt on power-operated face driver heads, hydraulically compensated with interchangeable driving pins. Driving pins can be changed to allow right-hand and left-hand rotation.

Technical features:

- max. compensating range of driving pins approx. 8 mm
- nominal value for max. loading approx. 4000 daN
- max. workpiece weight 800 kg
- **On request:** power-operated Face Driving Head CoK mechanically compensated and special designs

Tool group C15
Type 689-20
Power-operated Face Driving Head
size 1 CoK; hydraulic
left-hand rotation

Item no.	S	Approx. turning range	A	C	D	E	F	G	H	L	O	T	V	Y	Z	Pin	Weight approx. kg
088461	63	65-125	142	6	100	M 10	15	35	26	138 max. 143	72	120	16 max. 21	M 20x1,5	22	16 A	12
088462	75	80-150	142	9,5	100	M 10	15	35	26	138 max. 143	72	120	16 max. 21	M 20x1,5	22	16 H	12
088463	80	82-160	142	14,5	100	M 10	15	35	26	138 max. 143	72	120	16 max. 21	M 20x1,5	22	16 C	12



CoK, for hard continuous operating conditions.

Bolt on power-operated face driver heads, hydraulically compensated with interchangeable driving pins. Driving pins can be changed to allow right-hand and left-hand rotation.

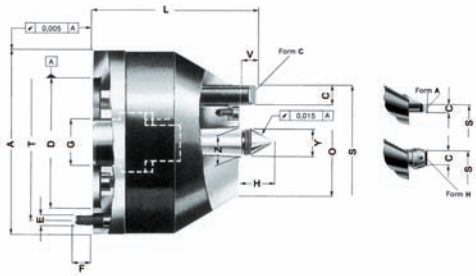
Technical features:

- max. compensating range of driving pins approx. 8 mm
- nominal value for max. loading approx. 4000 daN
- max. workpiece weight 800 kg
- **On request:** power-operated Face Driving Head CoK mechanically compensated and special designs

Tool group C15
Type 689-10
Power-operated Face Driving Head
size 2 CoK; hydraulic
left-hand rotation

Item no.	S	Approx. turning range	A	C	D	E	F	G	H	L	O	T	V	Y	Z	Pin	Weight approx. kg
088464	83	85-165	142	6	100	M 10	15	35	26	138 max. 143	92	120	16 max. 21	M 20x1,5	22	16 A	13
088465	95	100-190	142	9,5	100	M 10	15	35	26	138 max. 143	92	120	16 max. 21	M 20x1,5	22	16 H	13
088466	100	102-200	142	14,5	100	M 10	15	35	26	138 max. 143	92	120	16 max. 21	M 20x1,5	22	16 C	13

Power-operated Driving Heads CoK



CoK, for hard continuous operating conditions.

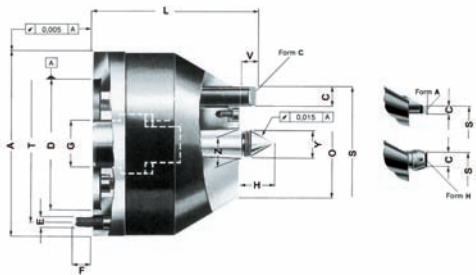
Bolt on power-operated face driver heads, hydraulically compensated with interchangeable driving pins. Driving pins can be changed to allow right-hand and left-hand rotation.

Technical features:

- max. compensating range of driving pins approx. 8 mm
- nominal value for max. loading approx. 4000 daN
- max. workpiece weight 800 kg
- **On request:** power-operated Face Driving Head CoK mechanically compensated and special designs

Tool group C15
Type 689-20
Power-operated Face Driving Head
**size 3 CoK; hydraulic
left-hand rotation**

Item no.	S	Approx. turning range	A	C	D	E	F	G	H	L	O	T	V	Y	Z	Pin	Weight approx. kg
088467	108	100-215	152	6	100	M 10	15	35	26	138 max. 143	117	120	16 max. 21	M 20x1,5	22	16 A	16
088468	120	125-240	152	9,5	100	M 10	15	35	26	138 max. 143	117	120	16 max. 21	M 20x1,5	22	16 H	16
088469	125	127-250	152	14,5	100	M 10	15	35	26	138 max. 143	117	120	16 max. 21	M 20x1,5	22	16 C	16



CoK, for hard continuous operating conditions.

Bolt on power-operated face driver heads, hydraulically compensated with interchangeable driving pins. Driving pins can be changed to allow right-hand and left-hand rotation.

Technical features:

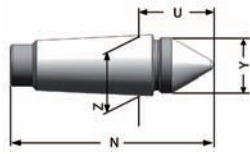
- max. compensating range of driving pins approx. 8 mm
- nominal value for max. loading approx. 4000 daN
- max. workpiece weight 800 kg
- **On request:** power-operated Face Driving Head CoK mechanically compensated and special designs

Tool group C15
Type 689-20
Power-operated Face Driving Head
**size 4 CoK; hydraulic
left-hand rotation**

Item no.	S	Approx. turning range	A	C	D	E	F	G	H	L	O	T	V	Y	Z	Pin	Weight approx. kg
088470	143	145-285	182	6	100	M 10	15	35	26	138 max. 143	152	120	16 max. 21	M 20x1,5	22	16 A	23
088471	155	160-310	182	9,5	100	M 10	15	35	26	138 max. 143	152	120	16 max. 21	M 20x1,5	22	16 H	23
088472	160	162-320	182	14,5	100	M 10	15	35	26	138 max. 143	152	120	16 max. 21	M 20x1,5	22	16 C	23

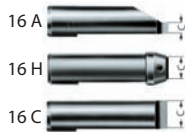
Accessories CoK

Tool group C15
Type 689-40 **Centres**, CoK



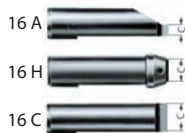
Item no.	N	U	Y	Z	Weight approx. g
085015	76	26	M 20x1,5	22	150

Tool group C15
Type 689-91
driving pins, right-hand rotation



Item no.	Diameter	Size	C	Length	Weight approx. g
085383	16	16 A	6	60	80
088100	16	16 H	9,5	60	90
085052	16	16 C	14,5	60	85

Tool group C15
Type 689-92
driving pins, left-hand rotation



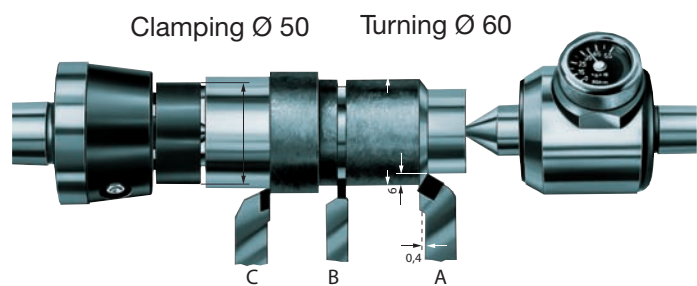
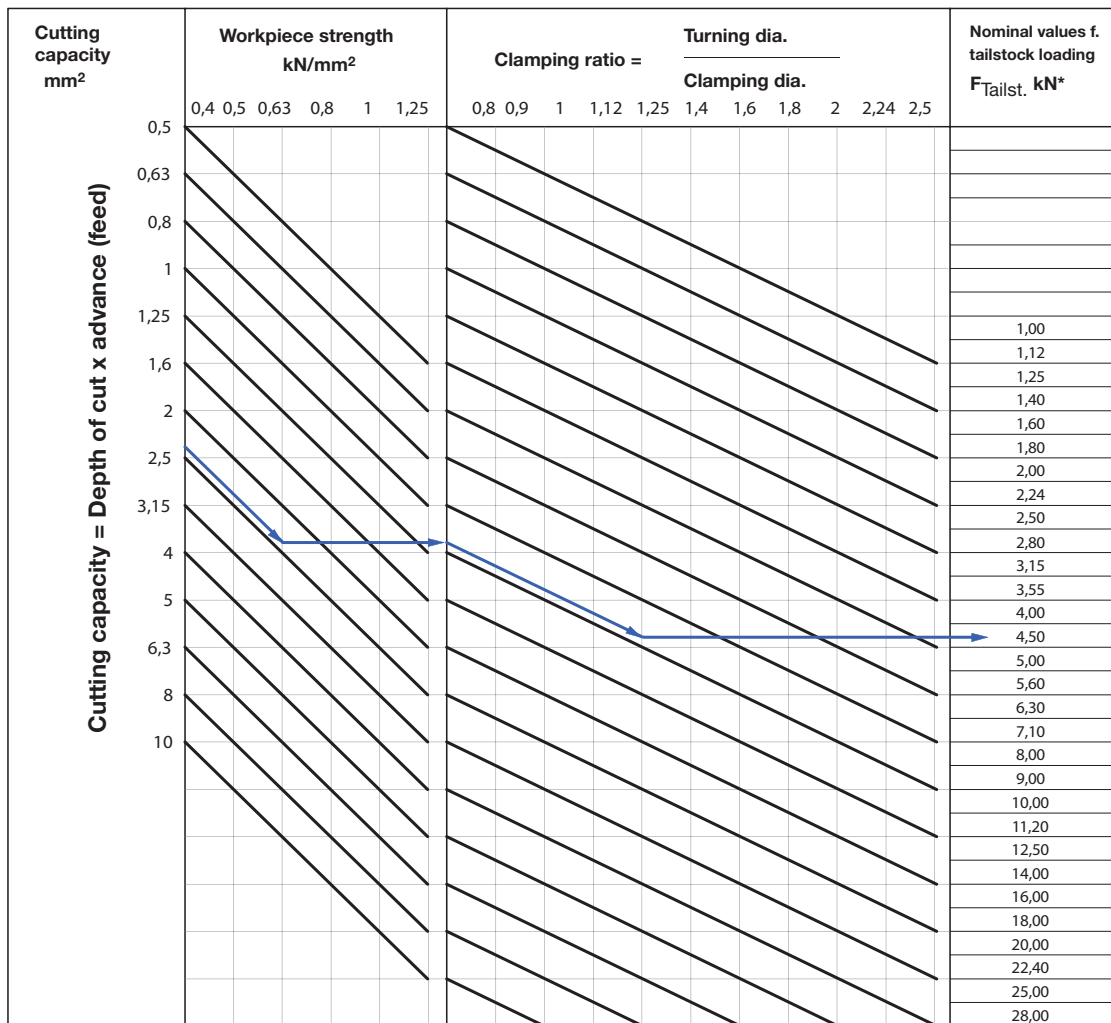
Item no.	Diameter	Size	C	Length	Weight approx. g
085016	16	16 A	6	60	80
088099	16	16 H	9,5	60	90
085051	16	16 C	14,5	60	85

Tool group A14
Type 680-90 **Hard metal driving plates**
right- or left-hand rotation



Item no.	Size	Clamping circuit Ø	Weight approx. g
088209	9,5x3,2	40-80	4

Clamping power diagram


Example:
A Turning against the headstock

 1. Cutting capacity: $6 \times 0,4 = 2,4 \text{ mm}^2$

 2. Workpiece strength: $= 0,63 \text{ kN/mm}^2$

 3. Clamping ratio: $60 : 50 = 1,2$

 4. Tailstock loading from graph F Tailst. $= 4,50 \text{ k}$

* Conversion factor for:

B Radial grooving

 $F_{\text{Tailst.}} \times 1,5$
C Turning against tailstock

 $F_{\text{Tailst.}} \times 2$

When using several cutters at once, the calculated tailstock loading must be added.

Tensile strength ranges:

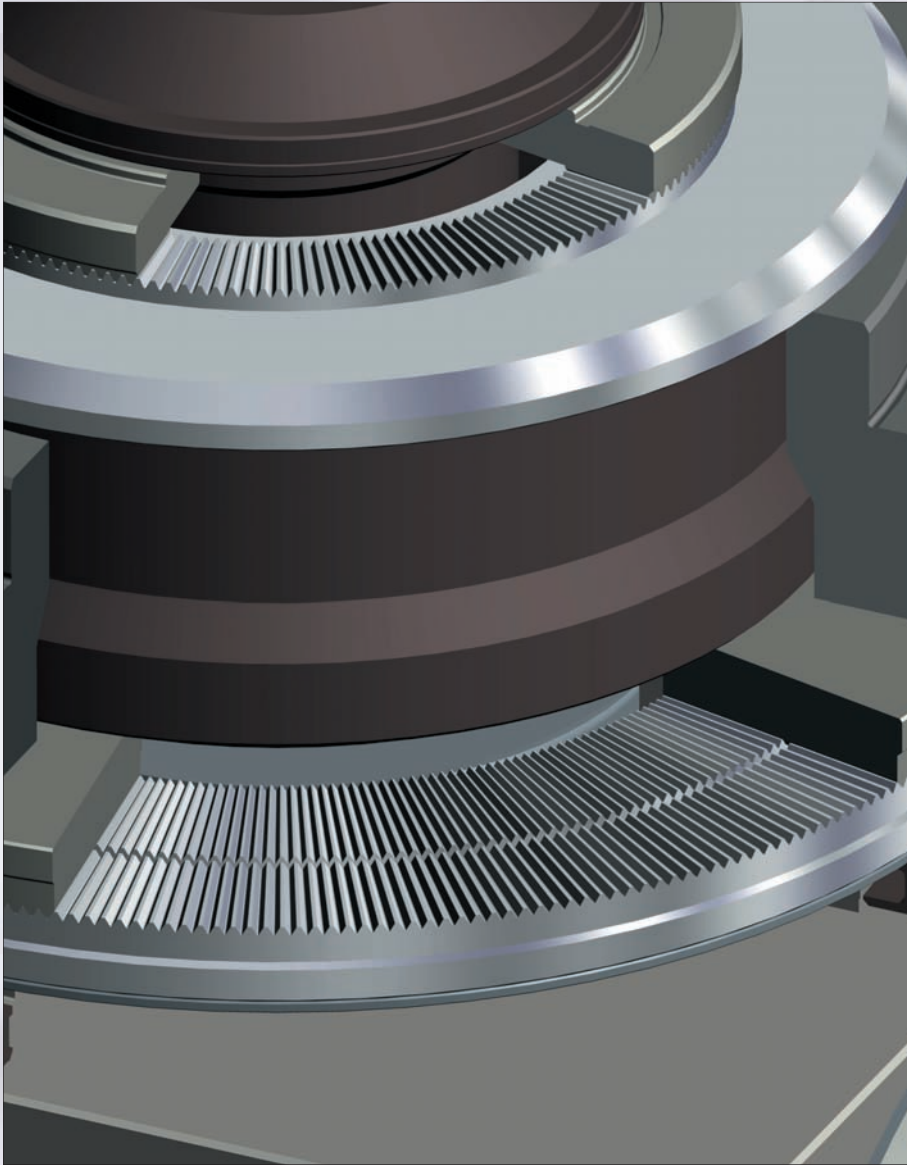
Workpiece strength kN/mm ²	0,40	0,50	0,63	0,80	1,00	1,25
Material	St 34-37	St 42	St 50	St 60-70	20MnCr5	18CrNi8
	9-15 S 20	C1 0	C15-22	C135-45	C60	30CrMoV9
	GG 14-35	GG 40	22S20	16MnCr5	15CrNi6	50CrMo4
	GGG-38	GGG-42	GGG-50	GGG-60	GGG-80	105WCr6

The Röhm slide rule, Id.-No. 88231 may also be used for easy calculation of the axial clamping power.

Technical features / Range of application

Hirth crown gears

Economic transmission element for high torques



- 1 $\varnothing \leq 400$
- 2 $\varnothing > 400$ + Special design

Angular milling cutter head

Blocking in working position free from play. The milling spindle will be centered by the Hirth-Rings absolutely free from play in 1 degree stepping between 0 and ± 90 degrees.

Hirth crown gears are suitable for accurate positioning, locating and especially for angular adjustment of machine elements and parts, e.g. turret heads, pallet changers, rotary indexing tables etc.

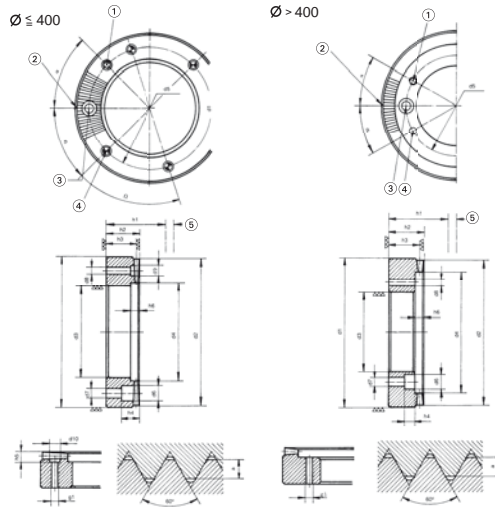
Technical Features:

- Very compact design
- Positive locking
- Self-centering
- High indexing accuracy $\pm 3''$
- High repetitive accuracy
- Ground surfaces
- Concentricity and parallelism errors within 0,01mm
- Toothing hardened to HRC 52 ± 2

Hirth crown gears



Economic transmission element for high torques
Frictional self-centering connection elements



- 1 Draw-off screw
- 2 Tooth gap
- 3 Socket head cap screw
- 4 Hole for alignment pin
- 5 Stroke

Tool group C 15
Type 870 Hirth crown gears

Item no.	Ø d1	Number of teeth	Stroke	Tooth overlap	Fixing hole	Hole for alignment pin	β	Ω	Draw-off screw	α	Ø d2	Ø d3	Ø d4	Ø d5	Ø d6	Ø d7	Ø d8	Ø d9	Ø d10	g1	h1	h2	h3	h4	h5	h6
658421	50	24	3,5	3,2	4X90°	2X180°	45°	-	2x180°	45°	49	20	21	35	11	6,6	5	7	7	M6	20	11,6	10	8,5	4	4
658422	50	36	2,6	2,4	4x90°	2x180°	45°	-	2x180°	45°	49	20	21	35	11	6,6	5	7	7	M6	20	11,2	10	8,5	4	4
658423	100	36	4,2	4	6x60°	2x180°	30°	-	2x180°	30°	99	60	61	80	11	6,6	5	7	7	M6	25	14,5	12,5	9,5	5	5
658424	100	48	3,5	3,2	6X60°	2x180°	30°	-	2x180°	30°	99	60	61	80	11	6,6	5	7	7	M6	25	14,1	12,5	9,5	5	5
658425	100	60	2,4	2,2	6x60°	2x180°	30°	-	2x180°	30°	99	60	61	80	11	6,6	5	7	7	M6	25	13,6	12,5	9,5	5	5
658426	125	48	3,6	3,4	6x60°	2x180°	30°	-	2x180°	30°	124	85	86	105	11	6,6	7	10	7	M6	30	16,7	15	12	5	5
658427	125	60	3,5	3,2	6x60°	2x180°	30°	-	2x180°	30°	124	85	86	105	11	6,6	7	10	7	M6	30	16,6	15	12	5	5
658428	125	72	3,5	3,2	6x60°	2x180°	30°	-	2x180°	30°	124	85	86	105	11	6,6	7	10	7	M6	30	16,6	15	12	5	5
658429	160	60	3,8	3,6	6x60°	2x180°	30°	-	2x180°	30°	159	120	121	140	11	6,6	7	10	10	M6	30	16,8	15	12	6	5
658430	160	72	3,8	3,6	6x60°	2x180°	30°	-	2x180°	30°	159	120	121	140	11	6,6	7	10	10	M6	30	16,8	15	20	6	5
658431	160	96	3,4	3,2	6x60°	2x180°	30°	-	2x180°	30°	159	120	121	140	11	6,6	7	10	10	M6	30	16,6	15	12	6	5
658432	200	72	4,2	4	6x60°	2x180°	30°	-	2x180°	30°	199	150	151	175	15	9	7	10	12	M8	35	19,5	17,5	14	6	5
658433	200	120	3,4	3,2	6x60°	2x180°	30°	-	2x180°	30°	99	150	151	175	15	9	7	10	12	M8	35	19,1	17,5	14	6	5
658434	250	120	3,5	3,2	10x36°	4	54°	72°	2x180°	18°	149	200	201	225	15	9	7	10	10	M8	35	19,1	17,5	13,5	5	5
658435	250	144	2,6	2,4	10x36°	4	54°	72°	2x180°	18°	249	200	201	225	15	9	7	10	10	M8	35	18,7	17,5	13,5	5	5
658436	280	120	4,2	3,9	10x36°	4	54°	72°	2x180°	18°	279	230	231	255	15	9	7	10	10	M8	40	21,59	20	14	6	5,5
658437	280	144	3,1	2,8	10x36°	4	54°	72°	2x180°	18°	279	230	231	255	15	9	7	10	10	M8	40	21,4	20	14	6	5,5
658438	320	120	5	4,8	10x36°	4	54°	72°	2x180°	18°	319	260	261	290	15	9	7	10	10	M8	40	22,4	20	14,5	6,5	5,5
658439	320	144	4	3,6	10x36°	4	54°	72°	2x180°	18°	319	260	261	290	15	9	7	10	10	M8	40	21,8	20	14,5	6,5	5,5
658440	360	120	4,8	4,5	10x36°	4	54°	72°	2x180°	18°	359	300	301	330	18	11	9	12	12	M8	45	24,75	22,5	15,5	6	6
658441	260	144	4,6	4,4	10x36°	4	54°	72°	2x180°	18°	359	300	301	330	18	11	9	12	12	M8	45	24,7	22,5	15	6	5
658442	360	360	2	1,8	10x36°	4	54°	72°	2x180°	18°	359	300	301	330	18	11	9	12	12	M8	45	23,4	22,5	15	6	5
658443	400	120	5	4,6	10x36°	4	54°	72°	2x180°	18°	399	340	341	370	18	11	9	12	12	M8	45	24,8	22,5	15	6	5
658444	400	144	4,2	4	10x36°	4	54°	72°	2x180°	18°	399	340	341	370	18	11	9	12	12	M8	45	24,5	22,5	15	6	5
658445	400	360	2,2	2	10x36°	4	54°	72°	2x180°	18°	399	340	341	370	18	11	9	12	12	M8	45	23,5	22,5	15	6	5
658446	450	120	5,2	5	12x30°	4*90°	15°	-	4x90°	45°	449	350	400	380	18	11	9	-	-	M8	50	27,5	25	11	-	6,5
658447	450	144	4	3,6	12x30°	4x90°	15°	-	4x90°	45°	449	350	400	380	18	11	9	-	-	M8	50	26,8	25	11	-	5
658448	450	360	3	2,7	12x30°	4x90°	15°	-	4x90°	45°	449	350	400	380	18	11	9	-	-	M8	50	26,35	25	11	-	5
658449	500	120	5,2	5	12x30°	4x90°	15°	-	4x90°	45°	499	400	450	430	18	11	9	-	-	M8	50	27,5	25	11	-	6,5
658450	500	144	5,2	5	12x30°	4x90°	15°	-	4x90°	45°	499	400	450	430	18	11	9	-	-	M8	50	27,5	25	11	-	6,5
658451	500	360	3,2	3	12x30°	4x90°	15°	-	4x90°	45°	499	400	450	430	18	11	9	-	-	M8	50	26,5	25	11	-	6
658452	560	120	5,2	5	12x30°	4x90°	15°	-	4x90°	45°	559	450	502	480	20	14	11	-	-	M10	55	30	27,5	13	-	7
658453	560	144	5,2	5	12x30°	4x90°	15°	-	4x90°	45°	559	450	502	480	20	14	11	-	-	M10	55	30	27,5	13	-	7
658454	560	360	3,8	3,4	12x30°	4x90°	15°	-	4x90°	45°	559	450	502	408	20	14	11	-	-	M10	55	29,2	27,5	13	-	5
658455	630	120	6,2	6	12x30°	4x90°	15°	-	4x90°	45°	629	520	580	550	20	14	11	-	-	M10	55	30,5	27,5	13	-	8
658456	630	144	5,7	5,5	12x30°	4x90°	15°	-	4x90°	45°	629	520	580	550	20	14	11	-	-	M10	55	30,25	27,5	13	-	7,5
658457	630	360	3,6	3,4	12x30°	4x90°	15°	-	4x90°	45°	629	520	580	550	20	14	11	-	-	M10	55	29,2	27,5	13	-	6
658458	630	720	2,2	2	12x30°	4x90°	15°	-	4x90°	45°	629	520	580	550	20	14	10	-	-	M10	55	28,5	27,5	13	-	6
658459	710	120	7,4	7	12x30°	4x90°	15°	-	4x90°	45°	709	590	650	620	20	14	11	-	-	M10	60	33,5	30	13	-	9,5
658460	710	144	6,5	6,2	12x30°	4x90°	15°	-	4x90°	45°	709	590	650	620	20	14	11	-	-	M10	60	33,1	30	13	-	8,5
658461	710	360	3,2	3	12x30°	4x90°	15°	-	4x90°	45°	709	590	650	620	20	14	11	-	-	M10	60	31,5	30	13	-	6
658462	710	720	2,3	2,1	12x30°	4x90°	15°	-	4x90°	45°	709	590	650	620	20	14	11	-	-	M10	60	31,05	30	13	-	6

Design and calculation guide

Pressure calculation

In a compressed situation, with a suitable F_{va} load and with no transmission of torque, this load is equally distributed on both faces of the tooth. Therefore, this is no resulting bending stress. But when transmitting torque M , pressure rises on one face of the tooth and diminishes on the other. The maximum pressure is calculated as follows:

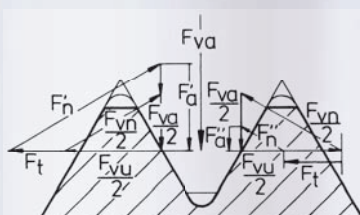
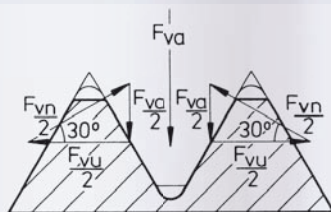
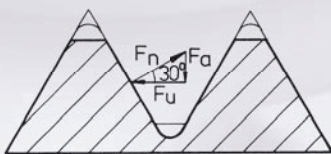
- D** = Outer diameter
- d** = Inner diameter
- n** = N° of holes in the toothed area
- dL** = Diameter of holes in toothed area
- Z** = N° of teeth
- a** = Contact height between teeth on outer diameter
- ηz** = Percentage of contact on surface over 70%
- Az** = Effective contact surface



$$P = \frac{F_{va} + F_a}{A_z}$$

$$A_z = \frac{\pi}{4} (D^2 - d^2 - nd_L^2) \frac{1,155 \cdot z \cdot a}{\pi D} \eta z$$

$$A_z = \frac{(D^2 - d^2 - nd_L^2) 0,289 \cdot z \cdot a \cdot \eta z}{D}$$



In consequence of the inclination of the tooth faces, an axial force F_u must be applied, due to the peripheral force F_v of the driving torque M . This axial force must be absorbed with a safety coefficient of $v=1,8$ to 3 , due to outside systems which tend to compress the couplings.

This axial force is:

$$F_u = \frac{F_v}{D + d}$$

$$F_a = F_v \cdot \tan 30^\circ = 0,577 F_v = F_a$$

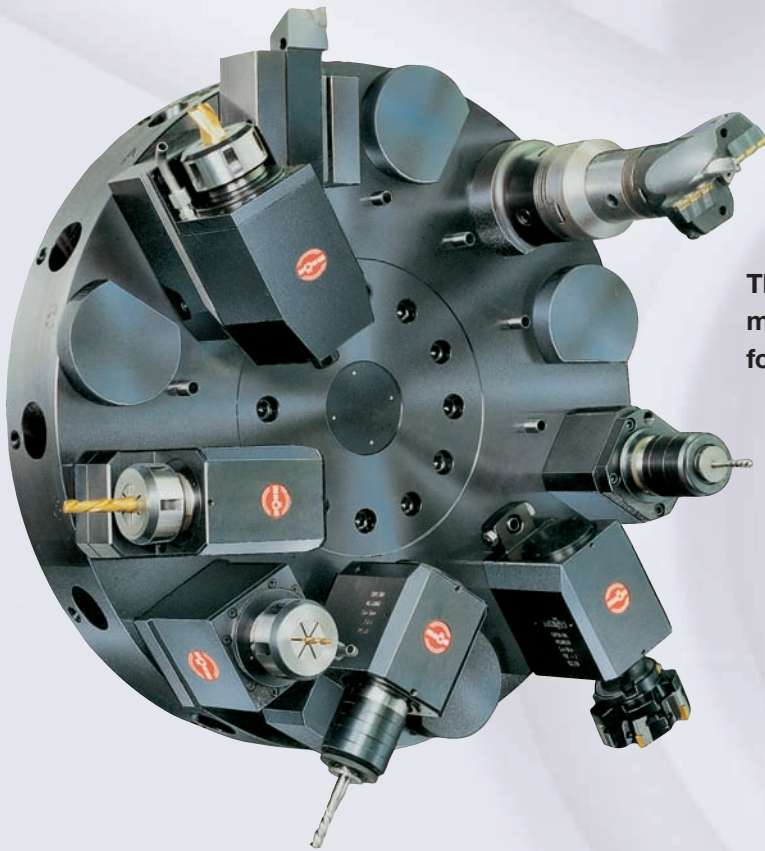
$$F_a = 0,577 \frac{4M}{D + d} = \frac{2,31M}{D + d} = F_a$$

$$F_{va} = v \cdot 0,577 \cdot F_u \quad F_u = \frac{F_{va}}{v \cdot 0,577}$$

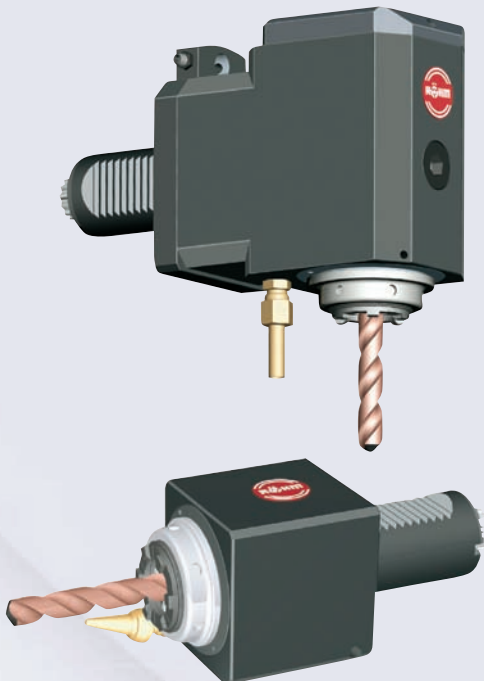
$$F_{va} = v \frac{2,31M}{D + d} \quad M = \frac{F_{va} (D + d)}{v \cdot 2,31}$$

Axial- and Radial Tool Heads

Complete part machining on CNC lathes and machining centers



The top quality range of tool heads manufactured with the highest precision, for your complete machining projects.



Technical features:

- Compact design of tool heads
- High rigidity and roundness precision
- High metal-removal rate
- Long service life thanks to precision mounting
- Maintenance-free operation thanks to permanent lubrication with grease filling
- All parts subject to wear case-hardened
- All tools with external coolant supply
- More flexible opportunities for operation
- Reduction of time for manufacturing, setting-up, and transport
- Added bonus of reduced ancillary costs
- Attractively-priced standard model

Special designs



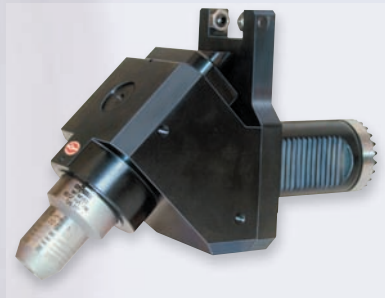
Radial tool head with collet reception



Axial tool head with prismatic guide



Axial screw driving machine HSK A63



Angular tool head for hydraulic expansion chuck



Milling tool head with rotatable millingshaft fork



Angular tool head with collet reception



Radial tool head with small angular adjustment



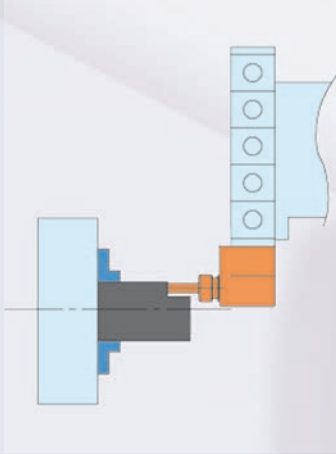
Milling unit with adjustable front head

Turret specifications and drive clutches

Tool star for turrets

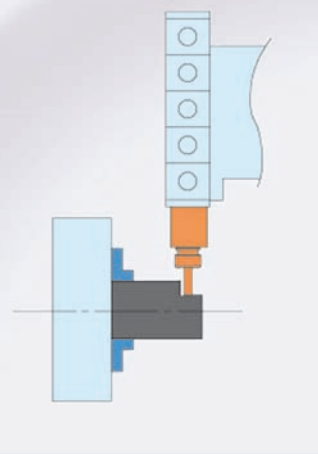
Axial

Angled tool heads for axial machining



Radial

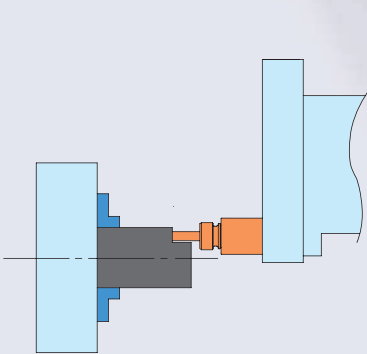
Straight tool heads for radial machining



Tool disk for turrets

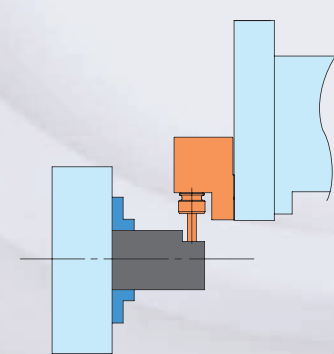
Axial

Straight tool heads for axial machining

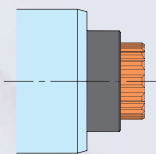


Radial

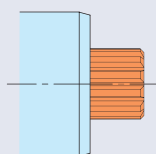
Angled tool heads for radial machining



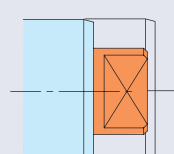
Drive couplings for different tool turrets



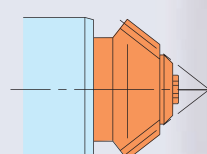
Teeth arrangement as per DIN 5480, with spindle torsion securing



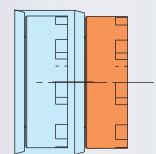
Teeth arrangement as per DIN 5482



Key surface to DIN 1809

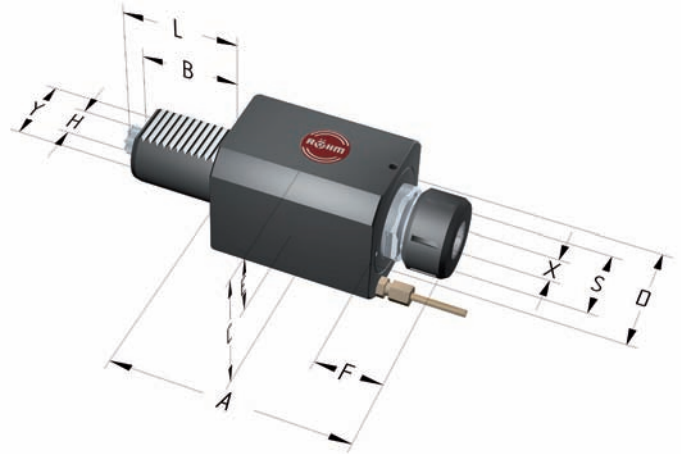


Bevel-wheel drive



Spur coupling

Axial Tool Heads



Tool group C 15
Type 361-31
AS for Collets DIN 6499
(setting angle 8°) with coupling to
DIN 5482
Delivered without collet,
for **clockwise and anticlockwise**
rotation, external coolant supply

Item no.	667759 ²⁾	652948 ¹⁾	652949 ¹⁾	624740	660809	657604
Y Ø h6 DIN 69880	16	20	20	30	30	40
X Ø	1-7	1-10	1-10	1-13	1-16	1-16
Collet chuck	424 E**	426 E**	426 E**	428 E**	430 E**	430 E**
A	72	84	106	93	120	120
B DIN 69880	32	40	40	45*	45*	53*
C	40	52	52	61	72	72
D	-	-	-	60	68	68
E	20	26	26	30	34	34
F	23	26	26	27	31	31
HDIN 5482	-	-	-	B 15 x 12	B 17 x 14	B 17 x 14
L	42	51	51	55	55	63
S	19	27	27	34	42	42
n _{max} min ⁻¹	6000	6000	6000	5000	5000	5000
T _{max} Nm	6	10	10	40	50	50

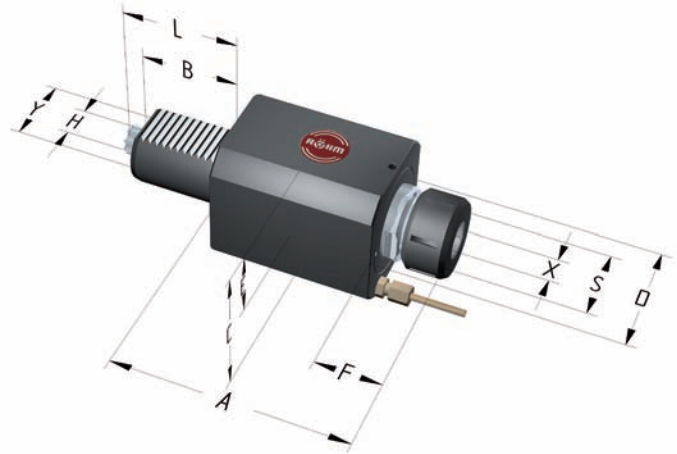
¹⁾ coupling W 10x0,8x30x11 DIN 5480 - Gearwheel complete - Id.-Nr. 694828

²⁾ coupling W 8x0,8x30x8 DIN 5480 - Gearwheel complete - Id.-Nr. 694982

* not DIN

** double slotted (Schaublin/Regofix)

Axial Tool Heads

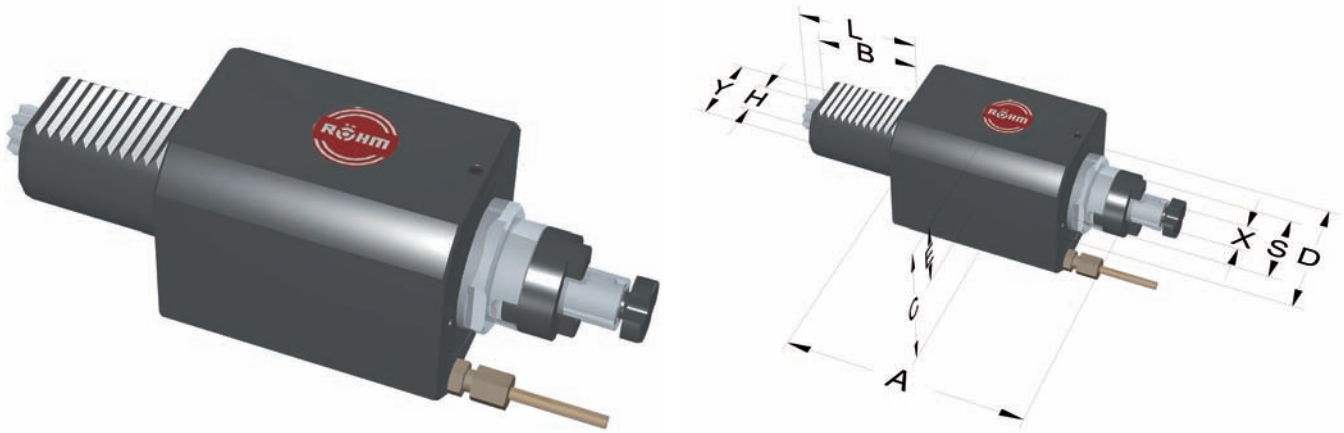


Tool group C 15
Type 361-31
AS for Collets DIN 6388
(Taper ratio 1:10) with coupling to
DIN 5482
Delivered without collet,
for **clockwise and anticlockwise**
rotation, external coolant supply

Item no.	601218	608391	601470	614315	608395	608399	373381
Y Ø h6 DIN 69880	30	30	40	40	50	50	60
X Ø	2-12	2-16/4-16/2-12	2-16/4-16/2-12	2-25/4-25/6-20	2-25/4-25/6-20	4-32/10-32/6-25	4-32/10-32/6-25
Collet chuck	407 E**	410 E** / 415 E*** / 421 E****	410 E** / 415 E*** / 421 E****	444 E** / 462 E*** / 459 E****	444 E** / 462 E*** / 459 E****	450 E** / 467 E*** / 460 E****	450 E** / 467 E*** / 460 E****
A	95	125	125	136	136	150	150
B DIN 69880	45*	45*	53*	63	78	78	94
C	61	68	72	80	84	96	102
D	60	68	68	80	80	96	96
E	30	34	34	40	40	48	48
F	29	36	36	54	54	50	50
HDIN 5482	B 15 x 12	B 17 x 14	B 17 x 14	B 20 x 17	B 20 x 17	B 25 x 22	B 25 x 22
L	55	55	63	79	93	93	108
S	35	43	43	60	60	72	72
n _{max} min ⁻¹	5000	5000	5000	5000	5000	3000	3000
T _{max} Nm	40	50	50	120	120	200	200

* not DIN
** simple slotted
*** double slotted
**** with draw-in-thread for milling cutters

Axial Tool Heads



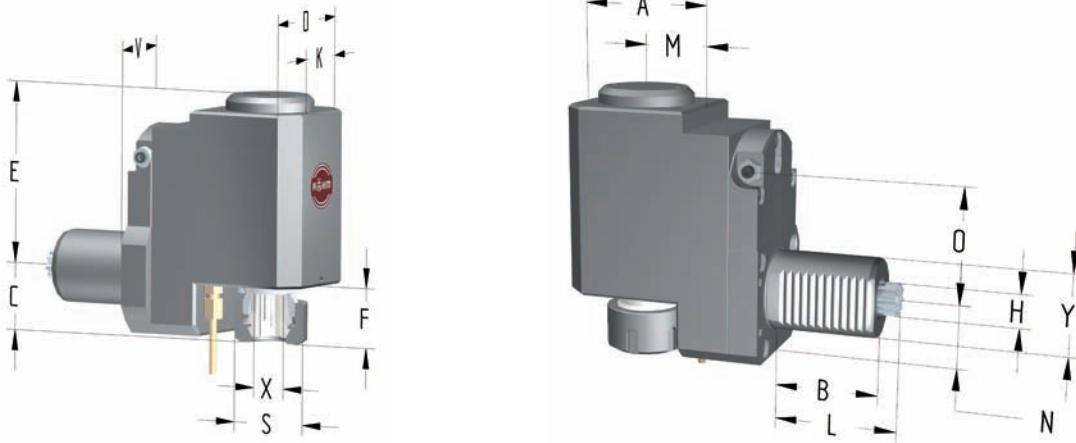
Tool group C 15
Type 361-51
AS for Cutter arbor DIN 6358
with coupling to DIN 5482
for cutters with longitudinal and
transversal slots,
for **clockwise and anticlockwise**
rotation, external coolant supply

Item no.	608392	608369	614316	608396	608400	608374
Y Ø h6 DIN 69880	30	40	40	50	50	60
X Ø	16	16	22	22	27	27
A	116	116	110	110	123	123
B DIN 69880	45°	53°	63	78	78	94
C	68	72	80	84	96	102
D	68	68	80	80	96	96
E	34	34	40	40	48	48
HDIN 5482	B17x14	B17x14	B20x17	B20x17	B25x22	B25x22
L	55	63	79	93	93	108
S	32	32	40	40	48	48
n_{max} min ⁻¹	5000	5000	5000	5000	3000	3000
T_{max} Nm	50	50	120	120	200	200

* not DIN

Supplied with cutter tightening screw and driver

Radial Tool Heads



Tool group C 15
Type 362-31
RS for Collets DIN 6499
(setting angle 8°) with coupling to
DIN 5482
Delivered without collet,
for **clockwise and anticlockwise**
rotation, external coolant supply,
* Actual dimension is marked

Item no.	667761 ²⁾	667762 ²⁾	652952 ¹⁾	652951 ¹⁾	660822	624742	660824	660823	660825	657605
Y Ø h6 DIN 69880	16	16	20	20	30	30	30	30	40	40
X Ø	1-7	1-7	1-10	1-10	1-13	1-13	1-16	1-16	1-16	1-16
Collet chuck	424 E**	424 E**	426 E**	426 E**	428 E**	428 E**	430 E**	430 E**	430 E**	430 E**
Design	left	right	left	right	left	right	left	right	left	right
A	62	62	80	80	102	102	102	102	102	102
B DIN 69880	32	32	40	40	45*	45*	45*	45*	53*	53*
C	28	28	33	33	26	26	33	33	33	33
D	40	40	52	52	64	64	64	64	64	64
E	55	55	85	85	98	98	98	98	98	98
F	23	23	26	26	26	26	29	29	29	29
HDIN 5482	-	-	-	-	B 15 x 12	B 15 x 12	B 17 x 14	B 17 x 14	B 17 x 14	B 17 x 14
K	20	20	26	26	32	32	32	32	32	32
L	42	42	51	51	55	55	55	55	63	63
M	42	42	54	54	70	70	70	70	70	70
N	20	20	26	26	32	32	32	32	32	32
O	-	-	70	70	40	40	63	63	63	63
P	-	-	8	8	10	10	12	12	12	12
S	19	19	27	27	34	34	42	42	42	42
V	20	20	26	26	32	32	38	38	38	38
n _{max} min ⁻¹	6000	6000	6000	6000	4500	4500	3000	3000	3000	3000
T _{max} Nm	6	6	10	10	25	25	25	25	25	25

¹⁾ coupling W 10x0,8x30x11 DIN 5480 - Gearwheel complete - Id.-Nr. 694828

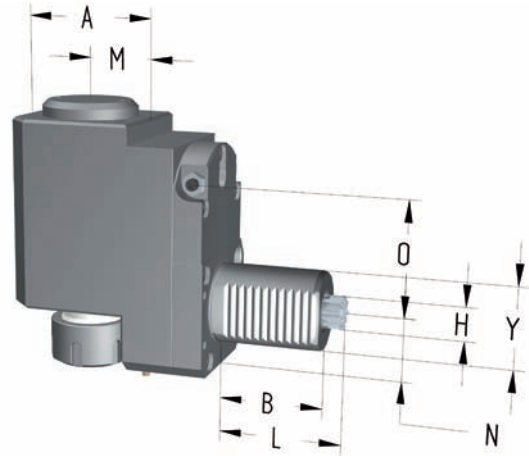
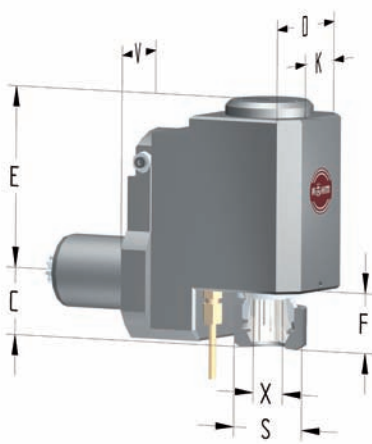
²⁾ coupling W 8x0,8x30x8 DIN 5480 - Gearwheel complete - Id.-Nr. 694982

* not DIN

** double slotted (Schaublin/Regofix)

Transmission with all radial tool heads 1:1, speed n_{max}. and torque T_{max}. refer to the output-speed

Radial Tool Heads

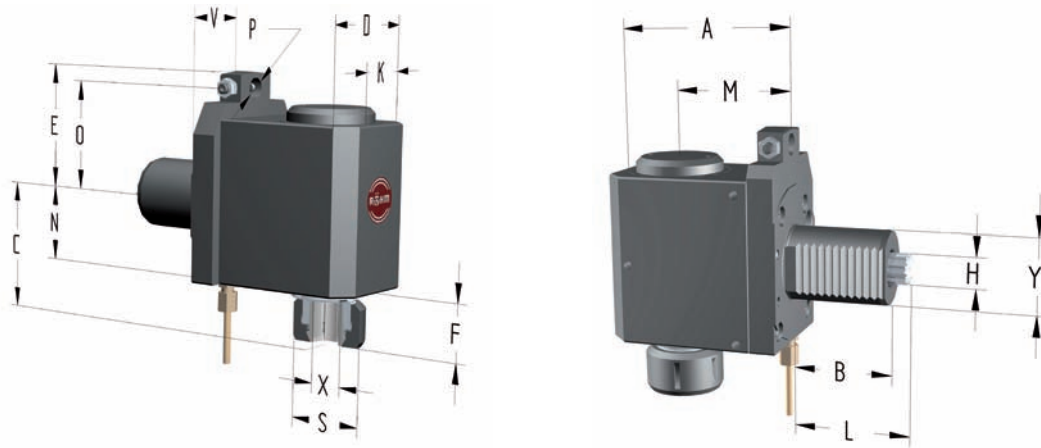


Tool group C 15
Type 362-31
RS for Collets DIN 6388
(Taper ration 1:10) with
coupling to DIN 5482
Delivered without collet,
for **clockwise and
anticlockwise rotation**,
external coolant supply,
* Actual dimension is
marked

Item no.	660797	601220	660799	660798	660800	639101	660801	639378	660803	660802	660805	660804	660807	660806
Y Ø h6 DIN 69880	30	30	30	30	40	40	40	40	50	50	50	50	60	60
X Ø	212	212	2-16/4- 16/2-12	2-16/4- 16/2-12	2-16/4- 16/2-12	2-16/4- 16/2-12	2-25/4- 25/6-20	2-25/4- 25/6-20	2-25/4- 25/6-20	2-25/4- 25/6-20	4-32/10- 32/6-25	4-32/10- 32/6-25	4-32/10- 32/6-25	4-32/10- 32/6-25
Collet chuck	407 E**	407 E**	410 E** / 415 E*** / 421 E****	410 E** / 415 E*** / 421 E****	410 E** / 415 E*** / 421 E****	410 E** / 415 E*** / 421 E****	444 E** / 462 E*** / 459 E****	444 E** / 462 E*** / 459 E****	444 E** / 462 E*** / 459 E****	444 E** / 462 E*** / 459 E****	450 E** / 467 E*** / 460 E****	450 E** / 467 E*** / 460 E****	450 E** / 467 E*** / 460 E****	450 E** / 467 E*** / 460 E****
Design	left	right	left	right	left	right	left	right	left	right	left	right	left	right
A	102	102	102	102	102	102	125	125	125	125	158	158	158	158
B DIN 69880	45*	45*	45*	45*	53*	53*	63	63	78	78	78	78	94	94
C	32	32	32	32	37	37	41	41	41	41	50	50	50	50
D	64	64	64	64	64	64	80	80	80	80	96	96	96	96
E	98	98	98	98	98	98	109	109	109	109	126	126	126	126
F	32	32	33	33	33	33	42	42	42	42	44	44	44	44
HDIN 5482	B 15 x 12	B 15 x 12	B 17 x 14	B 17 x 14	B 17 x 14	B 17 x 14	B 20 x 17	B 20 x 17	B 20 x 17	B 20 x 17	B 25 x 22	B 25 x 22	B 25 x 22	B 25x22
K	32	32	32	32	32	32	40	40	40	40	48	48	48	48
L	55	55	55	55	63	63	79	79	93	93	93	93	108	108
M	70	70	70	70	70	70	85	85	85	85	110	110	110	110
N	32	32	32	32	32	32	41	41	41	41	50	50	50	50
O	40	40	63	63	63	63	70	70	70	70	88	88	88	88
P	10	10	12	12	12	12	16	16	16	16	20	20	20	20
S	35	35	43	43	43	43	60	60	60	60	72	72	72	72
V	32	32	32	32	38	38	40	40	44	44	48	48	55	55
n_{max} min^{-1}	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
T_{max} Nm	25	25	25	25	25	25	55	55	55	55	100	100	100	100

* not DIN
** simple slotted
*** double slotted
**** with draw-in-thread for milling cutters

Radial Tool Heads

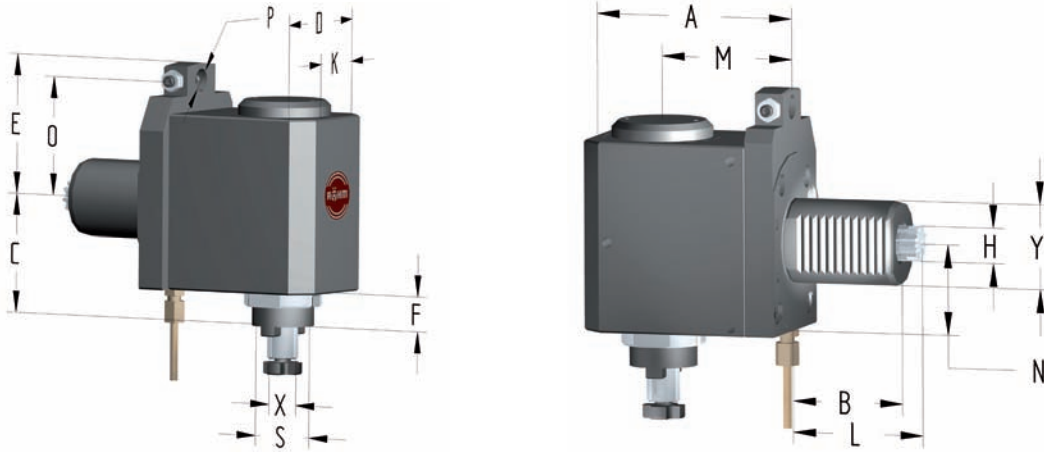


Tool group C 15
Type 362-31
RS for Collets DIN 6388
(Taper ration 1:10) with
coupling to DIN 5482
Delivered without collet,
for **clockwise and
anticlockwise rotation**,
external coolant supply,
* Actual dimension is
marked

Item no.	608571	608414	608572	608415	608573	608419	608575	608423	608576	608427	608577	608431	608578	608435
Y Ø	30	30	30	30	40	40	40	40	50	50	50	50	60	60
h6 DIN 69880														
X Ø	212	212	2-16/4-16/2-12	2-16/4-16/2-12	2-16/4-16/2-12	2-16/4-16/2-12	2-25/4-25/6-20	2-25/4-25/6-20	2-25/4-25/6-20	2-25/4-25/6-20	4-32/10-32/6-25	4-32/10-32/6-25	4-32/10-32/6-25	4-32/10-32/6-25
Collet chuck	407 E**	407 E**	410 E** / 415 E*** / 421 E****	410 E** / 415 E*** / 421 E****	410 E** / 415 E*** / 421 E****	410 E** / 415 E*** / 421 E****	444 E** / 462 E*** / 459 E****	444 E** / 462 E*** / 459 E****	444 E** / 462 E*** / 459 E****	444 E** / 462 E*** / 459 E****	450 E** / 467 E*** / 460 E****	450 E** / 467 E*** / 460 E****	450 E** / 467 E*** / 460 E****	450 E** / 467 E*** / 460 E****
Design	left	right	left	right	left	right	left	right	left	right	left	right	left	right
A	97	97	97	97	97	97	105	105	105	105	133	133	133	133
B DIN 69880	45*	45*	45*	45*	53*	53*	63	63	78	78	78	78	94	94
C	75	75	76	76	76	76	98	98	98	98	110	110	110	110
D	64	64	64	64	64	64	80	80	80	80	96	96	96	96
E	55	55	72	72	72	72	82	82	82	82	103	103	103	103
F	32	32	33	33	33	33	42	42	42	42	44	44	44	44
HDIN 5482	B15 x 12	B 15 x12	B17 x 14	B 17 x14	B17 x 14	B 17 x14	B20 x 17	B 20 x17	B20 x 17	B 20 x17	B25 x 22	B 25 x22	B25 x 22	B 25 x22
K	32	32	32	32	32	32	40	40	40	40	48	48	48	48
L	55	55	55	55	63	63	79	79	93	93	93	93	108	108
M	65	65	65	65	65	65	65	65	65	65	85	85	85	85
N	43	43	43	43	43	43	56	56	56	56	66	66	66	66
O	40	40	63	63	63	63	70	70	70	70	88	88	88	88
P	10	10	12	12	12	12	16	16	16	16	20	20	20	20
S	35	35	43	43	43	43	60	60	60	60	72	72	72	72
V	32	32	32	32	38	38	40	40	44	44	48	48	55	55
n_{\max} n_{\min}^{-1}	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
T_{\max} Nm	25	25	25	25	25	25	80	80	80	80	100	100	100	100

* not DIN
** simple slotted
*** double slotted
**** with draw-in-thread for milling cutters

Radial Tool Heads

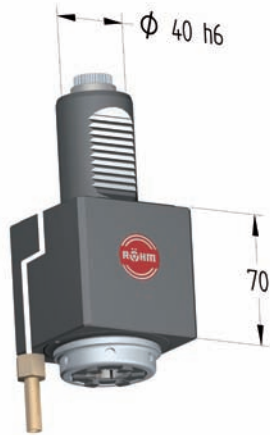


Tool group C 15
Type 362-51
RS for cutter arbor DIN 6358
with coupling to DIN 5482
for cutters with longitudinal and
transversal slots, for **clockwise**
and anticlockwise rotation,
external coolant supply,
Actual dimension is marked

Item no.	608587	608416	608588	608420	608589	608424	608590	608428	608591	608432	608592	608436
Y Ø	30	30	40	40	40	40	50	50	50	50	60	60
h6 DIN 69880												
X Ø	16	16	16	16	22	22	22	22	27	27	27	27
Key-width	27	27	27	27	36	36	36	36	55	55	55	55
Design	left	right	left	right	left	right	left	right	left	right	left	right
A	97	97	97	97	105	105	105	105	133	133	133	133
B DIN 69880	45*	45*	53*	53*	63	63	78	78	94	94	94	94
C	62	62	62	62	78	78	78	78	89	89	89	89
D	64	64	64	64	80	80	80	80	96	96	96	96
E	72	72	72	72	82	82	82	82	103	103	103	103
F	20	20	20	20	22	22	22	22	23	23	23	23
HDIN 5482	B17x14	B17x14	B17x14	B17x14	B20x17	B20x17	B20x17	B20x17	B25x22	B25x22	B25x22	B25x22
K	32	32	32	32	40	40	40	40	48	48	48	48
L	55	55	63	63	79	79	93	93	93	93	108	108
M	65	65	65	65	65	65	65	65	85	85	85	85
N	43	43	43	43	56	56	56	56	66	66	66	66
O	63	63	63	63	70	70	70	70	88	88	88	88
P	12	12	12	12	16	16	16	16	20	20	20	20
S	32	32	32	32	40	40	40	40	48	48	48	48
V	32	32	38	38	40	40	44	44	48	48	55	55
n _{max} min ⁻¹	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
T _{max} Nm	25	25	25	25	80	80	80	80	100	100	100	100

* not DIN
Supplied with cutter tightening screw and driver

Axial Tool Heads for radial machining



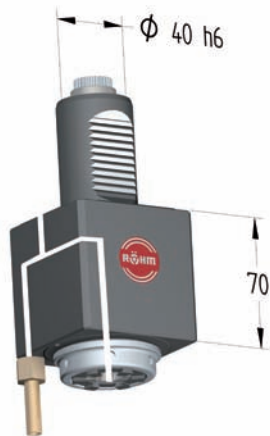
Axial Tool Heads with external coolant supply

For ER-collets DIN 6499, VDI shank with spindle torsion protection (licence Sauter), AX safety tensioning nut with REGO-FIX male thread

Tool group C 15
Typ 361-31
AS40i - Z20/ER32
Axial tool heads with external coolant supply

Item no.	Coupling DIN 5480	Torque max. Nm	Speed max. min-1	Transmission i=n1:n2	Cooling max. 70 bar
483255	W 20x0,8x30x24	100	4.000	1:1	external

AS = axial, turret Sauter, 40 i = VDI-shank with spindle torsion protection, Z = ER-collets DIN 6499, iK= internal coolant
Further mounting shafts on request



Axial Tool Heads with external and internal coolant supply

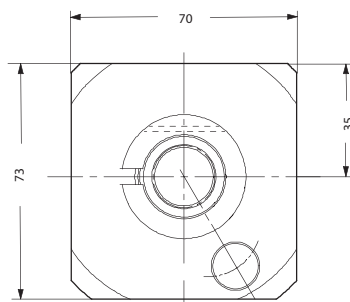
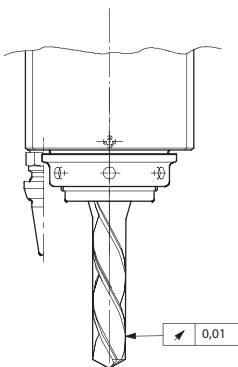
For ER-collets DIN 6499, VDI shank with spindle torsion protection (licence Sauter), AXC safety tensioning nut with REGO-FIX male thread

Dry running time without coolant max 2 hours

Tool group C 15
Type 361-33
AS 40i - Z20/ER32/iK
Axial tool heads with external and internal coolant supply

Item no.	Coupling DIN 5480	Torque max. Nm	Speed max. min-1	Transmission i=n1:n2	Cooling max. 70 bar
483248	W 20x0,8x30x24	100	4.000	1:1	external/internal

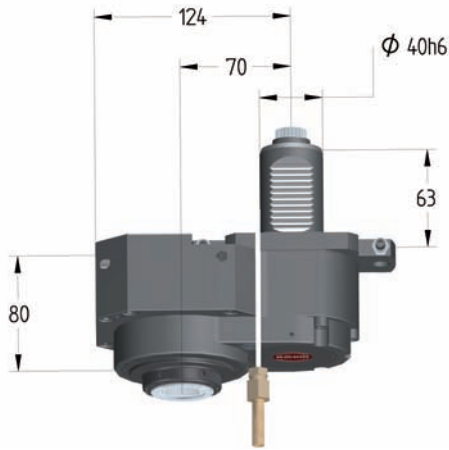
AS = axial, turret Sauter, 40 i = VDI-shank with spindle torsion protection, Z = ER-collets DIN 6499, iK= internal coolant
Further mounting shafts on request



Delivery includes:		
Name	Type	Item no.
Operating key	E 32 AX	487239
Sickle spanner	size 45-50	321886

Collets ER32 and sealing disks are not included in delivery!		
Name	Type	chucking capac.
Double splitted collet	470E	2,5-20
Sealing disk	DS/ER 32	

Axial Tool Heads for radial machining



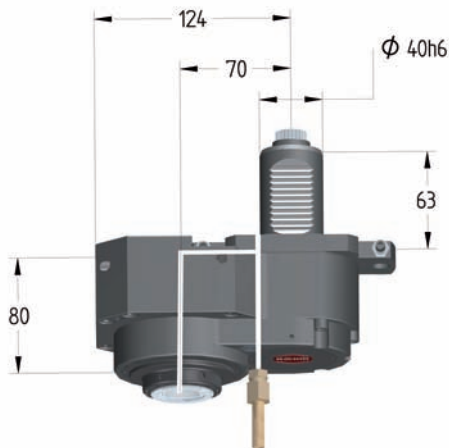
Axial Tool Heads with external coolant supply

For ER-collets DIN 6499, VDI shank with spindle torsion protection (licence Sauter), AX safety tensioning nut with REGO-FIX male thread, axis offset

Tool group C 15
Typ 361-31
AS40i - Z20/ER32/C70
Axial tool heads with external coolant supply

Item no.	Coupling DIN 5480	Axis offset	Torque max. Nm	Speed max. min-1	Transmission i=n1:n2	Cooling max. 70 bar
483249	W 20x0,8x30x24	70	100	2.000	2:1	external

AS = axial, turret Sauter, 40 i = VDI-shank with spindle torsion protection, Z = ER-collets DIN 6499, iK= internal coolant, C = axis offset
Further mounting shafts on request



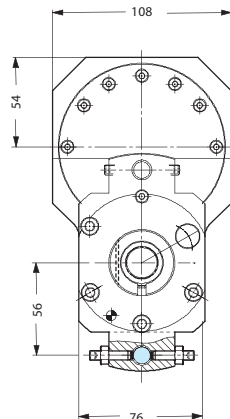
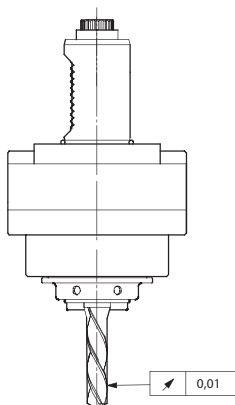
Axial Tool Heads with external and internal coolant supply

For ER-collets DIN 6499, VDI shank with spindle torsion protection (licence Sauter), AX safety tensioning nut with REGO-FIX male thread, axis offset

Tool group C 15
Type 361-33
AS 40i - Z20/ER32/iK/C70
Axial tool heads with external and internal coolant supply

Item no.	Coupling DIN 5480	Axis offset	Torque max. Nm	Speed max. min-1	Transmission i=n1:n2	Cooling max. 70 bar
483250	W 20x0,8x30x24	70	100	2.000	2:1	external/internal

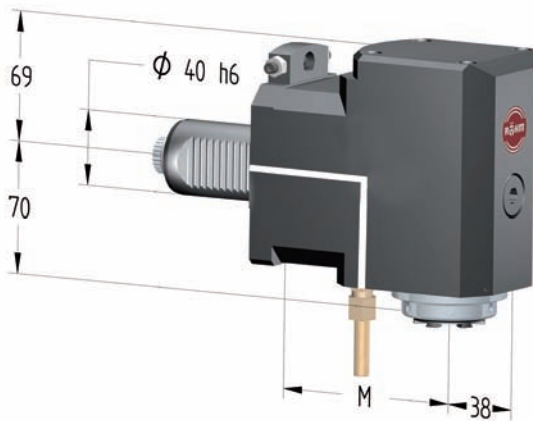
AS = axial, turret Sauter, 40 i = VDI-shank with spindle torsion protection, Z = ER-collets DIN 6499, iK= internal coolant, C = axis offset
Further mounting shafts on request



Delivery includes:		
Name	Type	Item no.
Operating key	E 32 AX	487239
Sickle spanner	size 45-50	321886

Collets ER32 and sealing disks are not included in delivery!		
Name	Type	chucking capac.
Double splitted collet	470E	2,5-20
Sealing disk	DS/ER 32	

Radial Tool Heads for axial machining

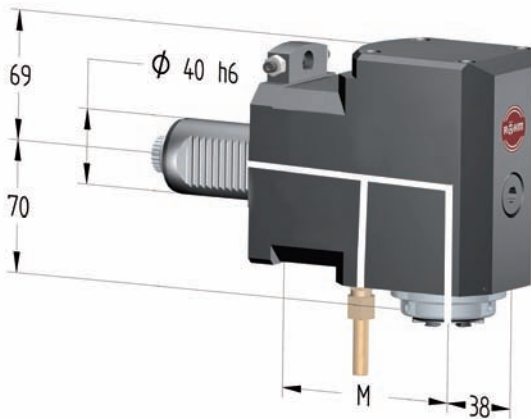


Radial Tool Heads with external coolant supply

For ER-collets DIN 6499, VDI shank with spindle torsion protection (licence Sauter), AX safety tensioning nut with REGO-FIX male thread

Tool group C 15 Type 362-31 RS40i - Z20/ER32 Radial tool heads with external coolant supply	Item no.	Coupling DIN 5480	Overhang spindle M	Torque max. Nm	Speed max. min-1	Transmission i=n1:n2	Cooling max. 70 bar
	483251	W 20x0,8x30x24	100	50	4.000	1:1	external
	483275	W 20x0,8x30x24	100	63	2.000	2:1	external
	483252	W 20x0,8x30x24	120	50	4.000	1:1	external
	483276	W 20x0,8x30x24	120	63	2.000	2:1	external

RS = radial, turret Sauter, 40 i = VDI-shank with spindle torsion protection, Z = ER-collets DIN 6499, iK= internal coolant
Further mounting shafts on request

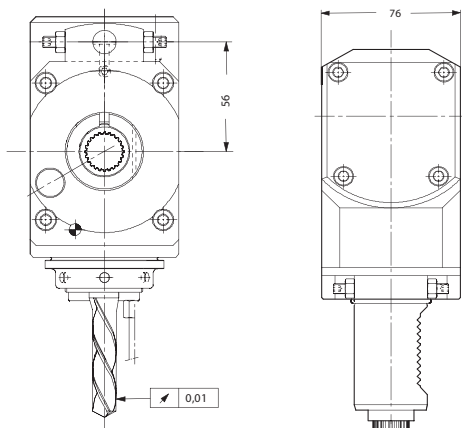


Radial Tool Heads with external and internal coolant supply

For ER-collets DIN 6499, VDI shank with spindle torsion protection (licence Sauter), AX safety tensioning nut with REGO-FIX male thread

Tool group C 15 Type 362-33 RS40i - Z20/ER32-iK Radial tool heads with external and internal coolant supply	Item no.	Coupling DIN 5480	Overhang spindle M	Torque max. Nm	Speed max. min-1	Transmission i=n1:n2	Cooling max. 70 bar
	483253	W 20x0,8x30x24	100	50	4.000	1:1	external/internal
	483277	W 20x0,8x30x24	100	63	2.000	2:1	external/internal
	483254	W 20x0,8x30x24	120	50	4.000	1:1	external/internal
	483278	W 20x0,8x30x24	120	63	2.000	2:1	external/internal

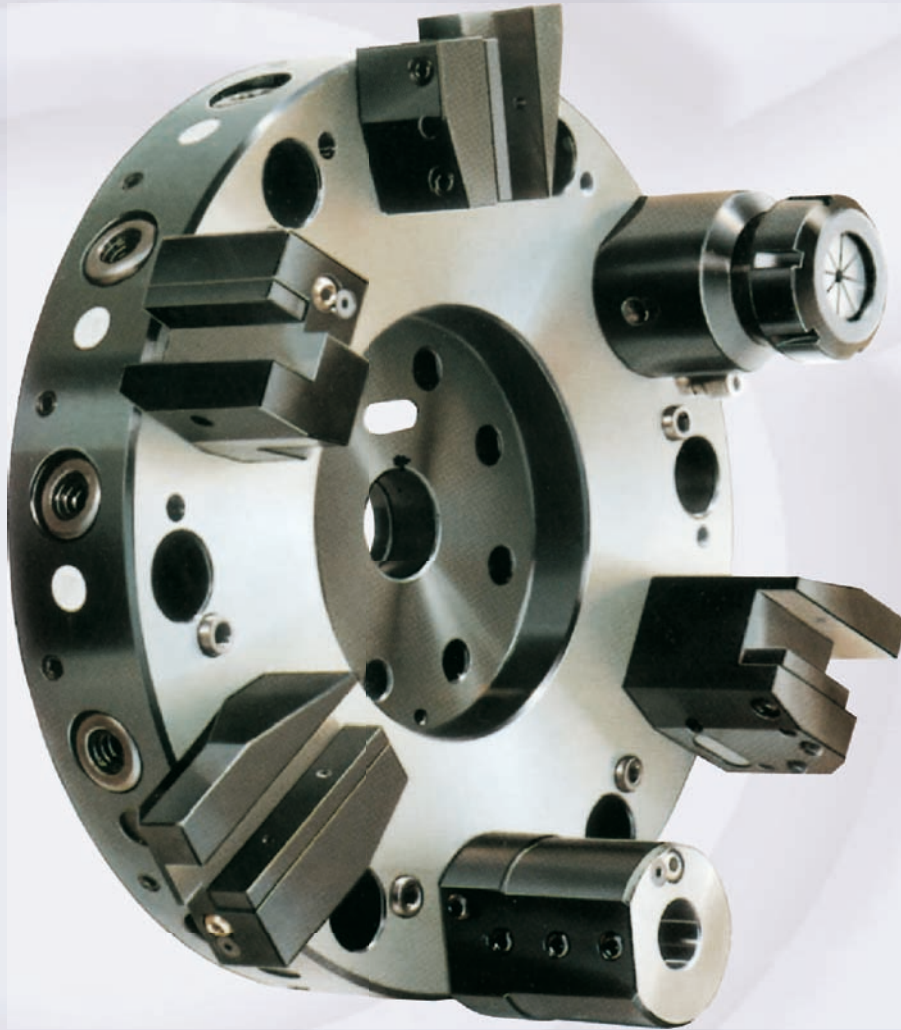
RS = radial, turret Sauter, 40 i = VDI-shank with spindle torsion protection, Z = ER-collets DIN 6499, iK= internal coolant
Further mounting shafts on request



Delivery includes:		
Name	Type	Item no.
Operating key	E 32 AX	487239
Sickle spanner	size 45-50	321886

Collets ER32 and sealing disks are not included in delivery!		
Name	Type	chucking capac.
Double splitted collet	470E	2,5-20
Sealing disk	DS/ER 32	

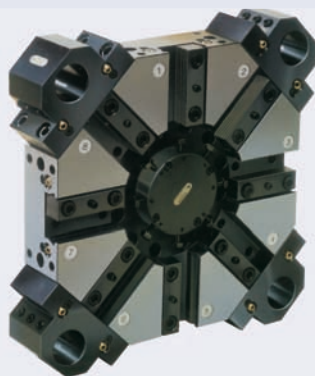
Tool discs for horizontal turrets



For economic machining of parts with high flexibility in one clamping. Several usual tools with VDI-shaft or direct mounting can be inserted in the disc and rapidly brought in machining position for a determined operation. Optimum use of space on the machine.



Standard design



Special designs are available on request.

