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**SELF CENTERING STEADY REST
LE/LZ/LEA/LZA**



This catalog lists all self centering Steady Rests and their accessories.

Note: Dimensions and data given in this catalog may not always correspond to the latest design features and are subject to change without notice.

Self-centering Steady Rests

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Self-centering Steady Rests

Application, operation and construction

APPLICATIONS

Steady Rests are an essential accessory for turning machines during the manufacture of slim shaft type workpieces, which under the influence of cutting loads become unstable with a liability to bend or deflect. Without the use of steady rests the physical properties are not maintained and problems of concentricity and surface finish (chatter) become apparent.

The bulk of **ATLING STEADY REST** installations are supporting shafts held between centers with the steady fixed to the machine bed. It's possible to relocate the steady along the bed length for variations in shaft lengths. In many cases it is an advantage to have two or more steadies to support the workpiece in appropriate positions.

In cases of extreme workpiece length it is recommended that a traveling steady be installed. This enables proper support against the cutting forces. Under these circumstances a programmable slide is essential.

A further possible application is the "flying" mode, whereby the workpiece is chucked but the tailstock is withdrawn for a facing or centering operation.

For best results our steadys should be used on a pre turned surface.

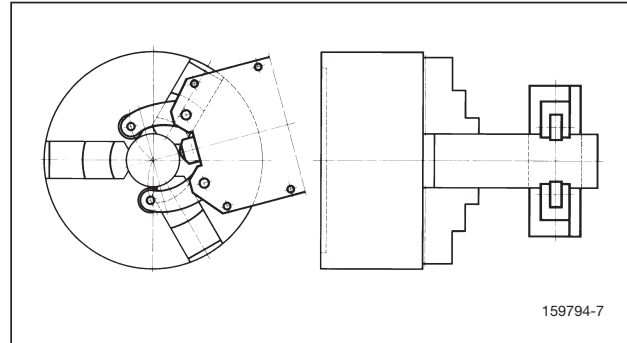
INSTALLATIONS

The self-centering **ATLING Type L Steady Rest** is a result of many years of development in design, manufacture and application. It is suitable to fit to practically any CNC or conventional lathe in the most critical space conditions. Mounting the unit requires a fixed bracket (stationary applications) or a moving slide (travelling applications).

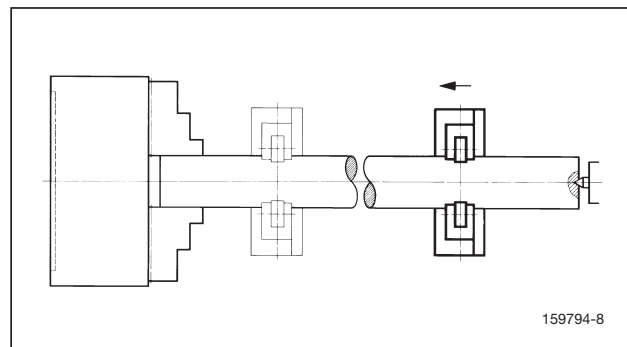
Many machine tool manufacturers can offer the bracket as an option, or we can supply the necessary mounting accessories for any flat or slant bed machine.

By knowing the machine details we can supply accessory brackets to suit special applications.

In addition to the standard **Type L**, a variety of special designs (size variations, external dimension changes, mounting, operating and roller options etc) can be supplied.



Picture 1 Fixed steady rest for supporting the free end of overhung workpieces.



Picture 2 Traveling steady rests, e.g. for machining long shafts.

OPERATION

ATLING Type L Steady Rests are typically operated by hydraulics or pneumatics.

Communication between the machine tool manufacturer and end user is imperative, to ensure proper integration of controls, positioning signals, mounting brackets, lubrication decisions, and tool clearance considerations.



Self-centering Steady Rests

Application, operation and construction

Construction

The ATLING-Steady Rests Type L housings are made from high-strength cast iron. All moving parts are made from tempered and hardened steel. Wiper seals are fitted to the housing at the openings for roller levers and centerpart to prevent ingress of coolant and chips. Manual or automatic lubrication and an air barrier provide precision, smooth running and an extraordinary life span for the inner parts.

The three roller levers enclose the workpiece at an angle of 120 degrees. Both the wide opening roller levers and the center support arc towards the center of the workpiece through precisely machined curved surfaces.

This patented design of the precise machined angle on the roller levers gives us far superior performance of uniform clamping force throughout the clamping range of each steady.

ATLING-Steady Rests are made according to the latest technical improvements. They apply to current CE-regulations and directives, EN 292-2, 89/392/EEC and 91/368/EEC.

This catalog contains detailed technical data and applications of the Atling Steady Rests and their options.

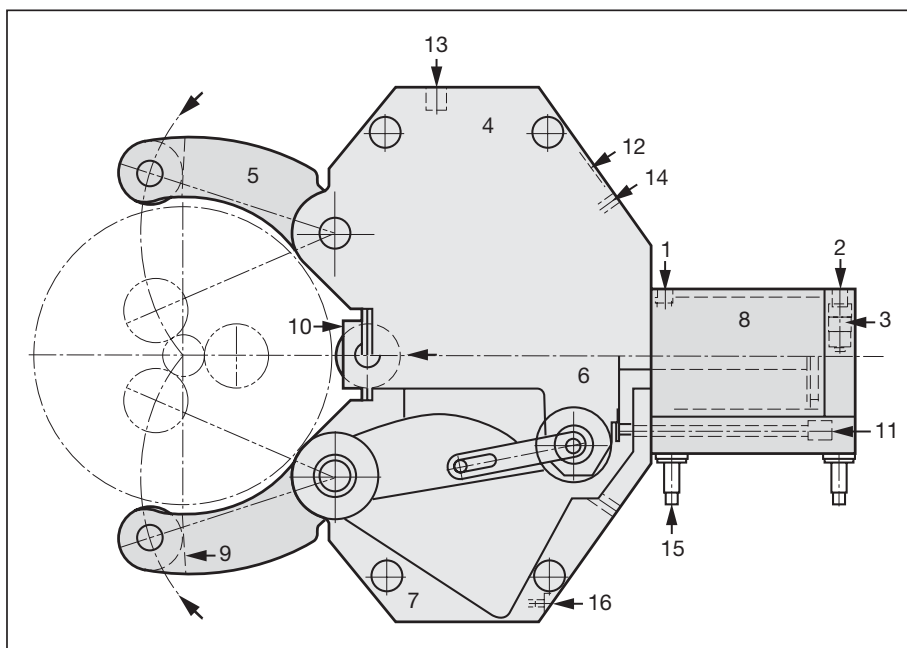
Contact the local Atling representative for further details.

For the L-version steady, the control curves are put on the roller levers.

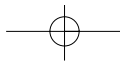
This version has several advantages:

- increased clamping range compared to the outside measurements.
- uniform clamping force for the complete clamping range.
- centering can be repeated with higher accuracy.

1. Connection for opening of cylinder
2. Connection for closing of cylinder
3. Check valve
4. Cover
5. Lever
6. Piston rod
7. House
8. Cylinder
9. Wiper, lever/roller
10. Wiper, piston rod/roller
11. Stroke control - accessories
12. Name plate
13. Thread for eye bolt
14. Air barrier or Drainage
15. Proximity switch
16. Manual or Automatic lubrication



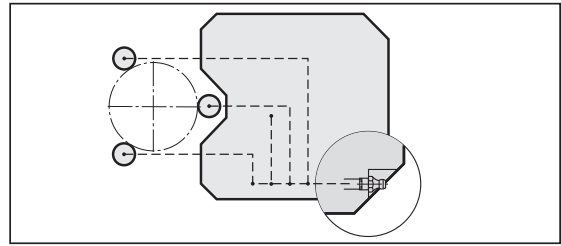
System description - Steady Version LE/LZ/LA



Design features

Manual lubrication

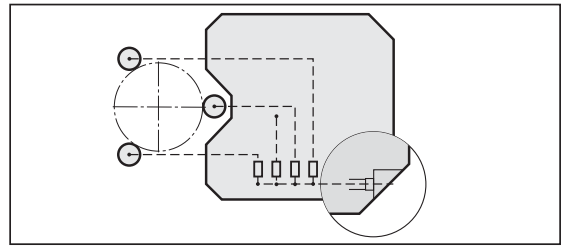
Steady Rests furnished with manual lubrication are thoroughly greased internally before delivery. Continual lubrication of the steady rest and all its moving parts is performed through one, easily accessible, single grease nipple.



Automatic lubrication

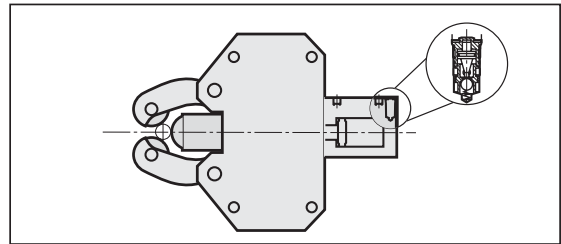
All lubrication points are provided with oil through integrated metering valves. Lubrication intervals depend on the amount of load and other circumstances that affects the steady rest.

Note: Machine needs to be equipped with auto-lube system, in order to use this feature. If required, Atling can provide.



Check valve

Check valves are delivered as standard on all cylinders. If the main pressure suddenly drops, the check valve keeps the cylinder pressure in order to prevent accidents. When turning tapered workpieces or applied as a travelling unit the check valve has to be disconnected.

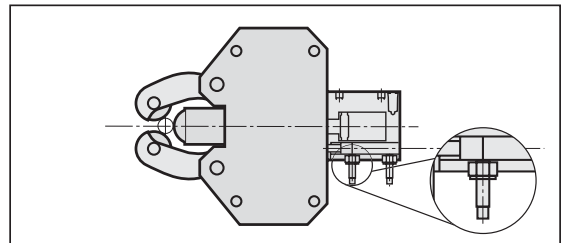


Stroke control

Stroke control is made possible by two separate proximity switches.

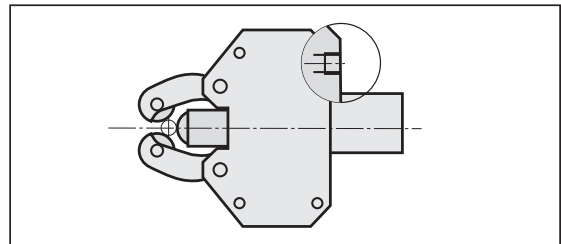
Proximity switch 1: Monitors the maximum open position
The switch is infinitely adjustable.

Proximity switch 2: Monitors a determined diameter position
The proximity switch is infinitely adjustable to any desired diameter of work piece.



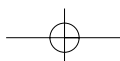
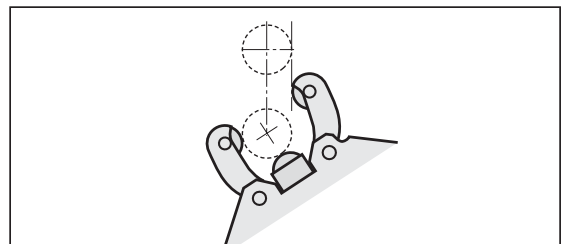
Air barrier

Compressed shop air can be connected to the housing to discourage chips and coolant from entering the housing.



Swing-away lever

The swing-away lever allows automatic workpiece loading from above.





Technical specifications

Type designation

Steady Rests with:	Rear mounted cylinder		Side mounted cylinder	
	Manual lubrication	Automatic lubrication	Manual lubrication	Automatic lubrication
Check valve	LE	LZ	LEB	LZB
Check valve Stroke control	LEW	LZW	LEBW	LZBW
Check valve Swing-away lever	LEA	LZA	LEBA	LZBA
Checkvalve Swing-away lever Stroke control	LEAW	LZAW	LEBAW	LZBAW

Steady size and performance data

	Total max. gripping force	Max. peripheral speed of rollers	Centering accuracy	Repeatability	Weight	Min. gripping diameter	Max. gripping diameter	Roller diameter	Cylinderdiameter Rearmounted cyl.	Piston area	Max. operating pressure
Steady size =	daN	m/min	mm	mm	kg	mm	mm	mm	mm	cm ²	bar
3 - 65	*300	1190	0,02	0,005	7	3,2	65	19	40	12,6	25
8 - 100	*1200	930	0,02	0,005	21	8	100	35	50	19,6	60
12 - 120	*1200	930	0,02	0,005	30	12	120	35	50	19,6	60
12 - 155	*3000	805	0,04	0,005	45	12	155	47	80	50,2	60
20 - 170	*3500	890	0,04	0,005	50	20	170	52	80	50,2	70
35 - 245	*4500	890	0,04	0,005	75	35	245	52	90	63,6	70
50 - 310	*5500	655	0,06	0,005	115	50	310	62	100	78,5	70
50 - 360	*5500	765	0,06	0,005	145	50	360	72	100	78,5	70
150 - 420	*5500	765	0,08	0,01	205	150	420	72	100	78,5	70
125 - 460	*9000	685	0,1	0,02	260	125	460	80	120	113	80
100 - 500	*7900	765	0,1	0,02	245	100	500	72	120	113	70

*Gripping force = Piston area x max. operating pressure

Order code example

Steady rest type	L Z B A W	35 - 245	1 7 5 1 5 6
Designation		Steady size	Model number
L	Type	Gripping range	See page 7
	Check valve		
Z	Automatic lubrication		
B	Side mounted cylinder		
A	Swing-away lever		
W	Stroke control		



Model number

Steady Rests with: Check valve

Steady size	Rear mounted cylinder		Side mounted cylinder	
	Manual lubrication	Automatic lubrication	Manual lubrication	Automatic lubrication
	LE	LZ	LEB	LZB
3-65	175000	175001	175089	175090
8-100	175004	175005	175093	175094
12-120	175008	175009	175097	175098
12-165	175012	175013	175101	175102
20-170	175016	175017	175105	175106
35-245	175020	175021	175109	175110
50-310	175024	175025	175113	175114
50-360	175028	175029	175117	175118
150-420	175032	175033	175121	175122
125-460	175036	175037	175125	175126
100-500	175040	175041	175129	175130

Steady Rests with: Check valve Stroke control

Steady size	LEW	LZW	LEBW	LZBW
3-65	175002	175003	175091	175092
8-100	175006	175007	175095	175096
12-120	175010	175011	175099	175100
12-165	175014	175015	175103	175104
20-170	175018	175019	175107	175108
35-245	175022	175023	175111	175112
50-310	175026	175027	175115	175116
50-360	175030	175031	175119	175120
150-420	175034	175035	175123	175124
125-460	175038	175039	175127	175128
100-500	175042	175043	175131	175132

Steady Rests with: Check valve Swing-away lever

Steady size	LEA	LZA	LEBA	LZBA
3-65	175044	175045	175133	175134
8-100	175048	175049	175137	175138
12-120	175052	175053	175141	175142
12-165	175056	175057	175145	175146
20-170	175060	175061	175149	175150
35-245	175064	175065	175153	175154
50-310	175068	175069	175157	175158
50-360	175072	175073	175161	175162
150-420	175076	175077	175165	175166
125-460	175080	175081	175169	175170
100-500	175084	175085	175173	175174

Steady Rests with: Check valve Swing-away lever Stroke control

Steady size	LEAW	LZAW	LEBAW	LZBAW
3-65	175046	175047	175135	175136
8-100	175050	175051	175139	175140
12-120	175054	175055	175143	175144
12-165	175058	175059	175147	175148
20-170	175062	175063	175151	175152
35-245	175066	175067	175155	175156
50-310	175070	175071	175159	175160
50-360	175074	175075	175163	175164
150-420	175078	175079	175167	175168
125-460	175082	175083	175171	175172
100-500	175086	175087	175175	175176

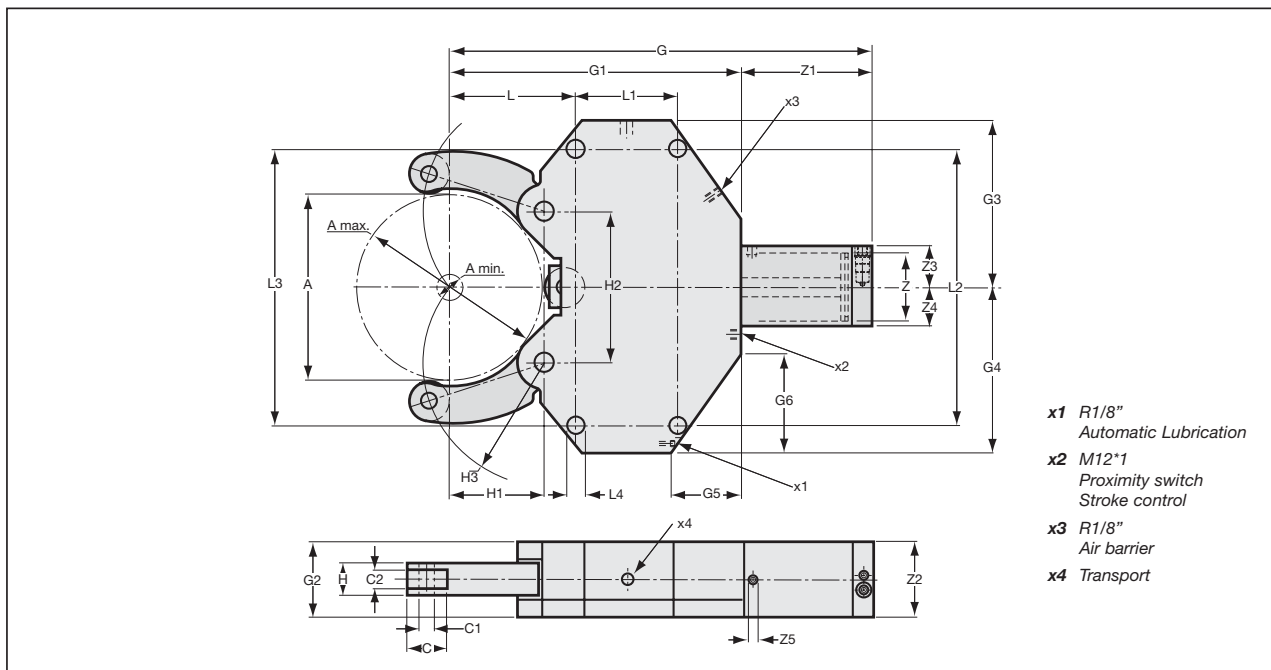
Steady Rests (standard models) are delivered with Check valve

1 Set of cylindrical rollers and
1 Set of roller wiper seals as
standard equipment.

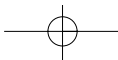


Steady Rest dimensions

LE/LZ with Rear mounted cylinder

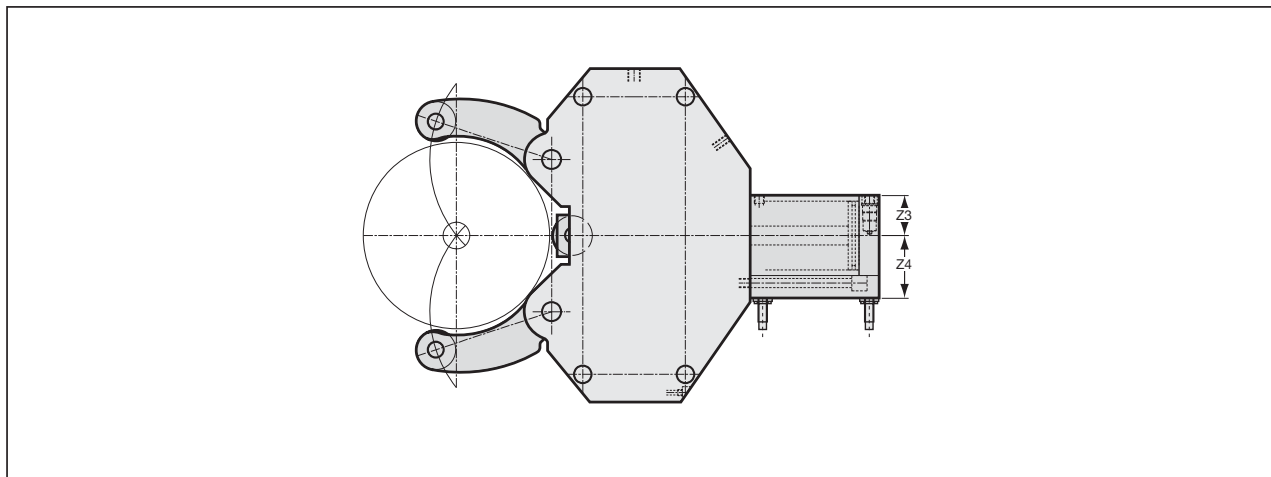


Steady Rest size =		3-65	8-100	12-120	12-155	20-170	35-245	50-310	50-360	150-420	125-460	100-500
Gripping range	A min (mm)	3,2	8	12	12	20	35	50	50	150	125	100
	A max (mm)	65	100	120	155	170	245	310	360	420	460	500
	A (mm)	68	103	125	158	175	248	320	366	433	474	522
Rollers	C (mm)	19	35	35	47	52	52	62	72	72	80	72
	C1 (mm)	6	15	15	20	20	20	30	30	30	35	30
	C2 (mm)	12	19	19	25	25	25	29	29	29	29	29
Lever	H (mm)	26	37	37	53	53	53	68	68	98	98	98
	H1 (mm)	40	60	65	90	102,5	125	169	190,5	205,5	223,5	256
	H2 (mm)	60	90	120	146	160	200	250	275	350	400	400
	H3 (mm)	50	75	88	116	130	160	210	235	270	300	325
Housing	G (mm)	229	309	355	426	445	555	668	711	783	892	938
	G1 (mm)	135	200	235	290	305	386	470	491	570	650	662
	G2 (mm)	57	70	70	90	90	100	110	110	142	142	142
	G3 (mm)	70	102,5	142	157,5	157,5	219	250	265	295	340	350
	G4 (mm)	70	102,5	142	157,5	157,5	219	250	265	295	340	350
	G5 (mm)	5	42	69	30	45	92	106	111	63	119	112
	G6 (mm)	5	42	75	30	45	132	106	111	150	207	180
Hole pattern	L (mm)	51	70	77	115	123	166	178	208,5	280	260	292,5
	L1 (mm)	64	85	102	135	135	135	210	210	220	260	260
	L2 (mm)	118	170	220	262	262	365	400	400	510	620	620
	L3 (mm)	118	170	210	262	262	365	400	400	510	620	620
	L4 (mm)	11	14	14	18	18	23	23	23	26	26	26
Cylinder	Z (mm)	40	50	50	80	80	90	100	100	100	120	120
	Z1 (mm)	94	109	120	136	140	169	198	220	213	242,5	276
	Z2 (mm)	57	70	70	90	90	100	110	110	142	142	142
	Z3 (mm)	35	37,5	37,5	50	50	52,5	55	55	55	67,5	67,5
	Z4 (mm)	25	37,5	37,5	50	50	52,5	55	55	55	67,5	67,5
	Z5 (Zoll)	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"	G1/4"
Piston area	(cm2)	12,6	19,6	19,6	50,2	50,2	63,6	78,5	78,5	78,5	113	113



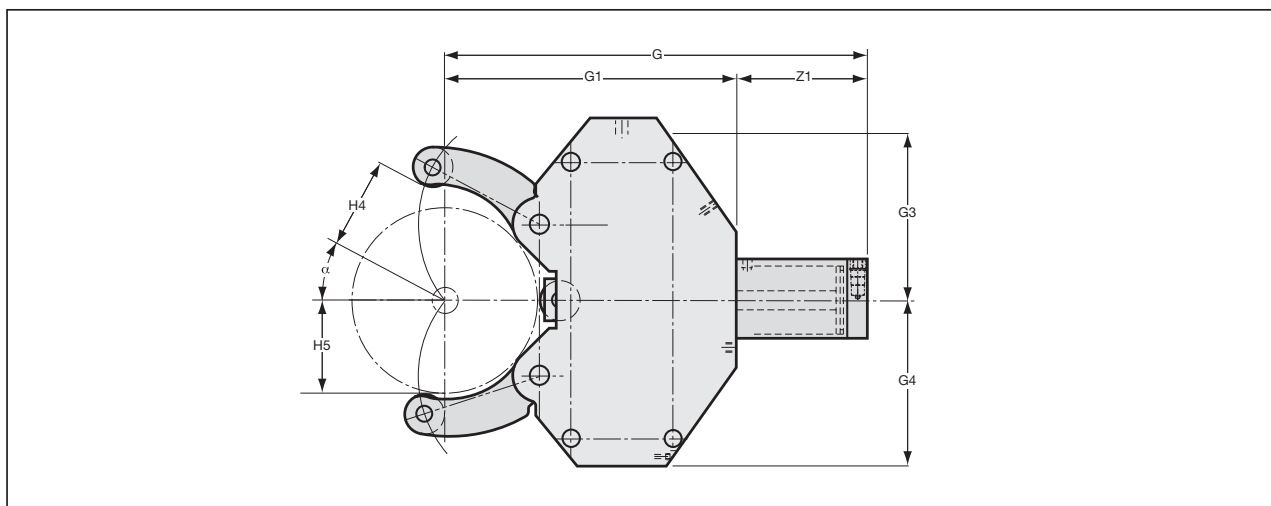
Steady Rest dimensions

LEW/LZW with Stroke control

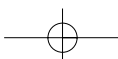


Steady Rest size			3-65	8-100	12-120	12-155	20-170	35-245	50-310	50-360	150-420	125-460	100-500
Cylinder	Z3	(mm)	35	37,5	37,5	50	50	52,5	55	55	55	67,5	67,5
	Z4	(mm)	55	67,5	67,5	80	80	82,5	85	85	85	97,5	97,5

LEA/LZA with Swing-away lever



Steady rest size = Gripping range			3 - 65	8 - 100	12 - 120	12 - 155	20 - 170	35 - 245	50 - 310
Lever		[Degr.]	20	22	20	25	25	28	26
	H 4	[mm]	32,5	50	60	77,5	85	122,5	155
	H 5	[mm]	34	51,5	62,5	79	87,5	124	160
Housing	G	[mm]	231	319	365	436	459	565	692
	G 1	[mm]	135	205	240	295	312	386	482
	G 3	[mm]	70	110	147	170	170	239	270
	G 4	[mm]	70	102,5	142	157,5	157,5	219	250
Cylinder	Z 1	[mm]	96	114	125	141	147	179	210





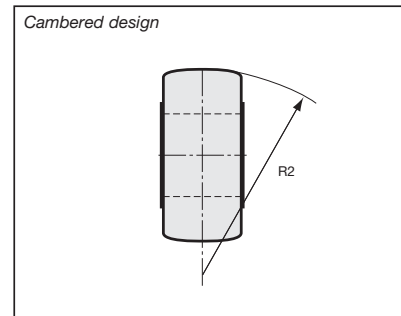
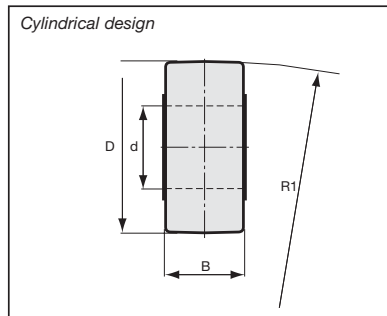
Rollers and wiper seals

Rollers

ATLING Steady Rests are equipped with

1 Set of sealed, cylindrical standard rollers.
 Your advantage: - inexpensive spare parts
 - constant quality
 - in stock inventory

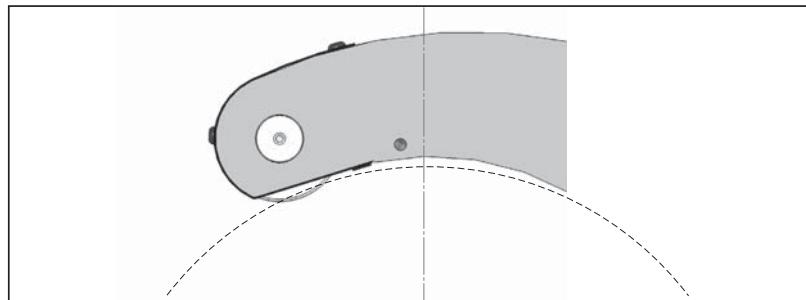
Cambered Rollers R2 for travelling steady rests are available on special request.



Steady Rest size			3-65	8-100	12-120	12-155	20-170	35-245	50-310	50-360	150-420	125-460	100-500
Rollersize	D	(mm)	19	35	35	47	52	52	62	72	72	80	72
	d	(mm)	6	15	15	20	20	20	30	30	30	35	30
	B	(mm)	12	19	19	25	25	25	30	29	29	29	29
Cylindrical design	R1	(mm)	500	500	500	500	500	500	500	500	500	500	500
	Model number		158028	158585	158585	157882	157886	157886	157888	175177	175177	175179	175177
Rollersize	R2	(mm)	80	150	150	150	150	150	150	150	150	150	150
	Model number		158029	158586	158586	157883	157887	157887	157889	175178	175178	175180	175178

Roller wiper seal for Lever

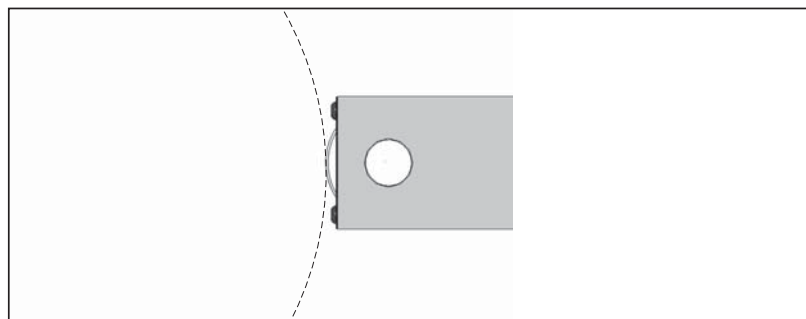
Standard models are furnished with roller wiper seals.



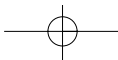
Steady Rest size	3-65	8-100	12-120	12-155	20-170	35-245	50-310	50-360	150-420	125-460	100-500
Model number	175181	175182	175183	175184	175185	175185	175186	175187	175188	175189	175188

Roller wiper seal for Center piece

Standard models are furnished with roller wiper seals.



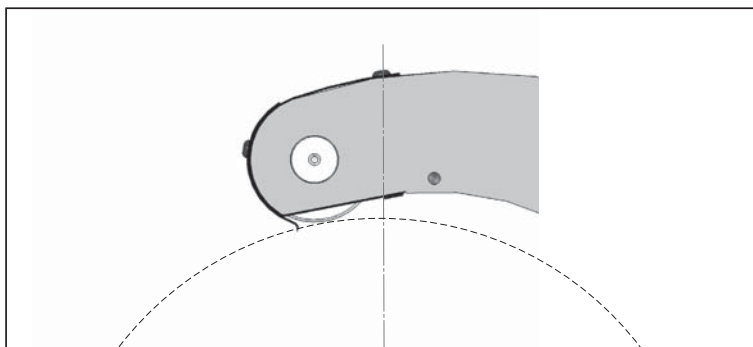
Steady Rest size	3-65	8-100	12-120	12-155	20-170	35-245	50-310	50-360	150-420	125-460	100-500
Model number		158765	158766	158767	158768	158769	158770	175190	175191	175192	175191



Accessories

Standard workpiece wiper seals

The ATLING Steady Rest can also be equipped with a standard workpiece wiper seal. The seal is fitted to the lever for the right diameter of work and is then attached to the lever with two screws.

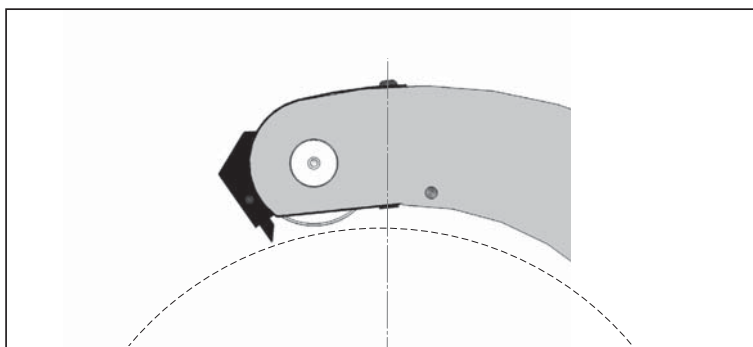


Steady Rest size	3-65	8-100	12-120	12-165	20-170	35-245	50-310	50-360	150-420	125-460	100-500
Model number	175192	175193	175194	175195	175196	175197	175198	175199	175200	175500	175501

Resilient workpiece wiper seal

The ATLING Steady Rest can also be equipped with a resilient workpiece wiper seal. The seal conforms to the workpiece diameter and does not need any adjustments.

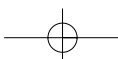
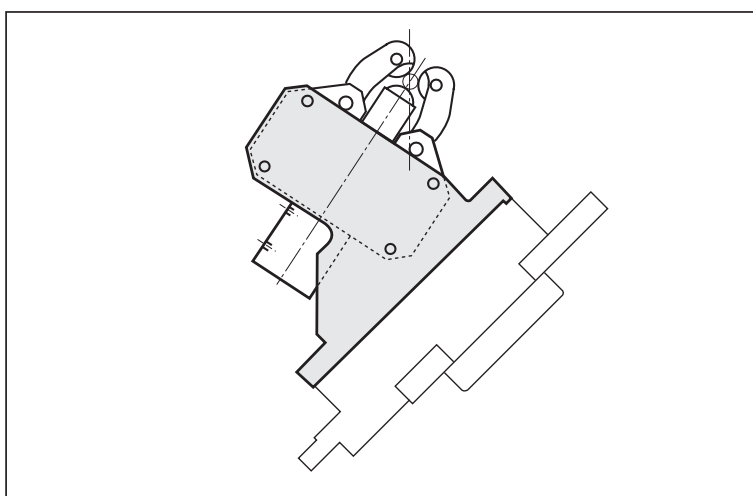
Please note that the gripping range is decreased during the use of this seal!



Steady Rest size	3-65	8-100	12-120	12-165	20-170	35-245	50-310	50-360	150-420	125-460	100-500
Model number		175502	175503	175504	175505	175506	175507	175508	175509	175510	175511

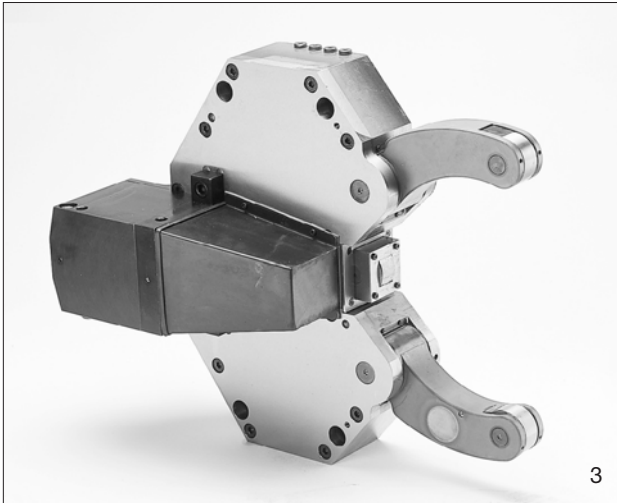
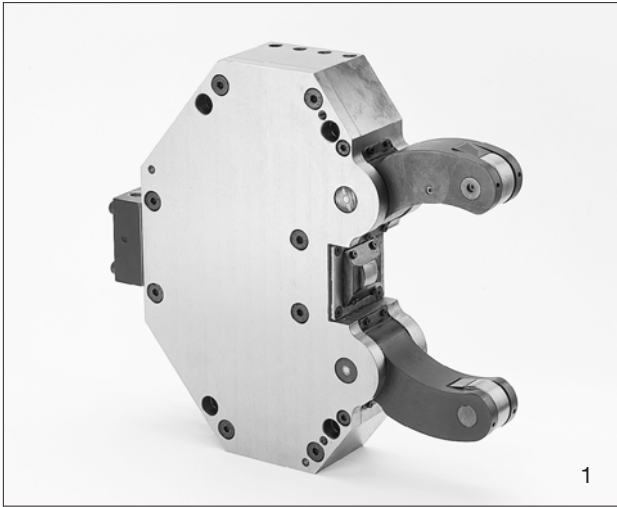
Mounting bracket

The specifications of the mounting bracket will be unique to the particular machine to be accommodated. (see page 15)

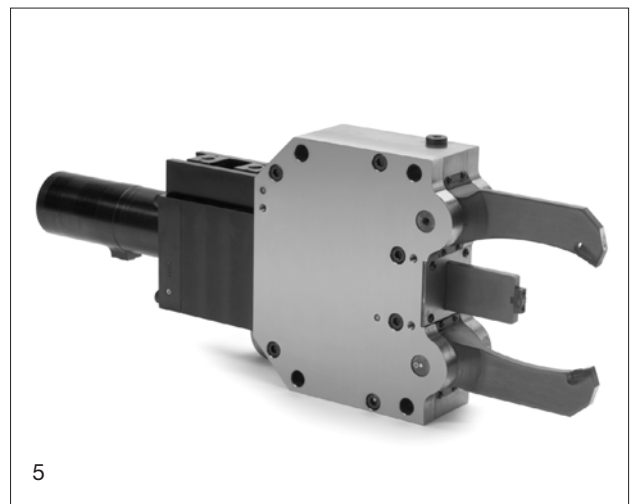
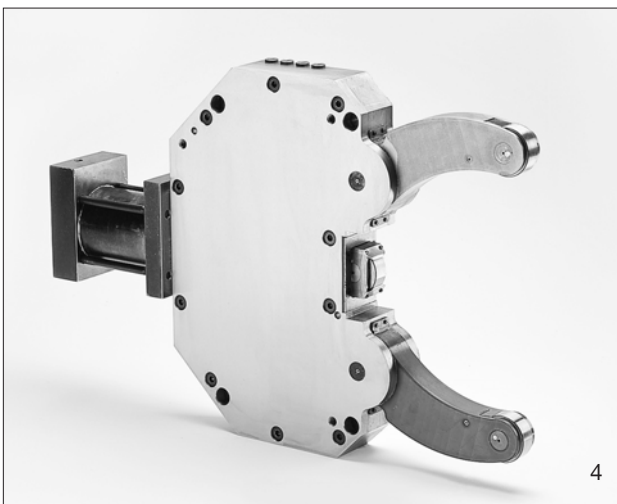


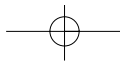


Special designs



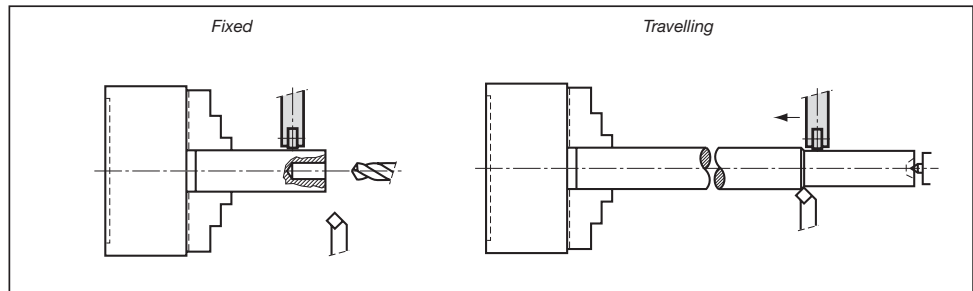
- 1) Steady rest with internal cylinder.
- 2) Steady rest with VDI connection.
- 3) Steady rest with side mounted cylinder.
- 4) Steady rest with thin levers for crankshaft or camshaft.
- 5) Steady rest for grinding machine.



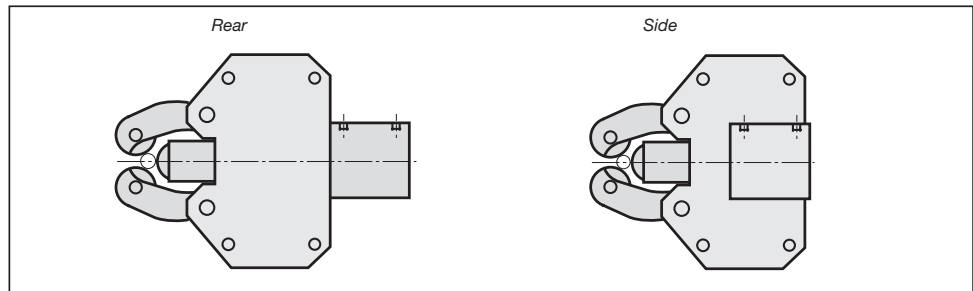


Special designs

Mode of operation

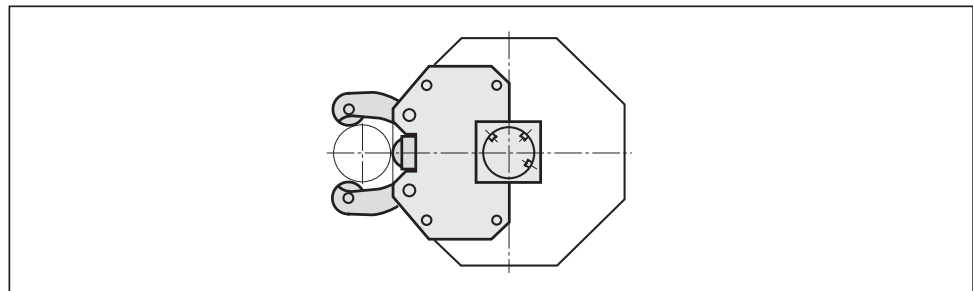


Cylinder location



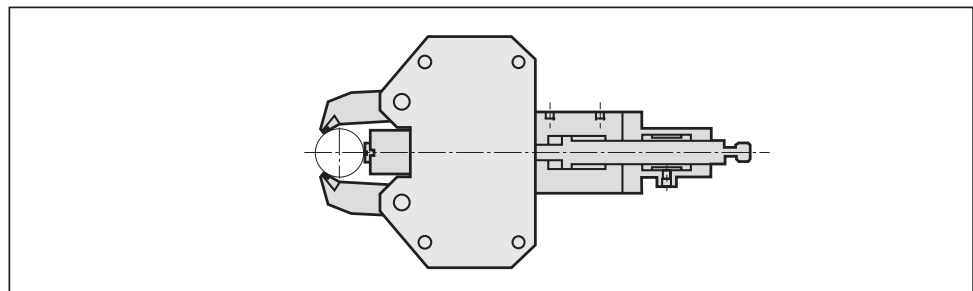
Turret mounted

Rotating coupling



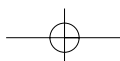
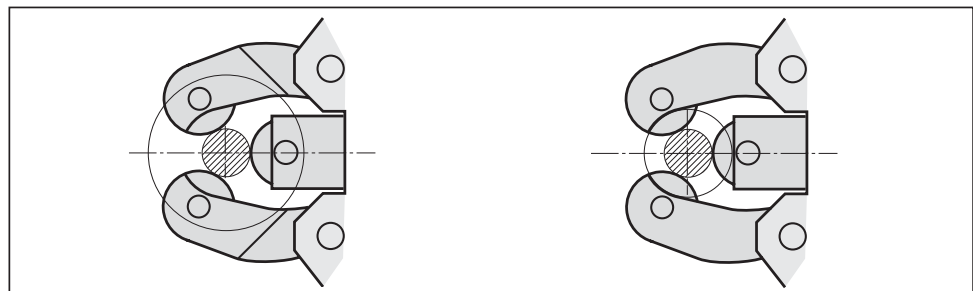
Grinding operation

Locking sleeve
Slide plate



Crank and Camshaft operation

Gripping diameter
Max. Turning diam.
Max. Lever width



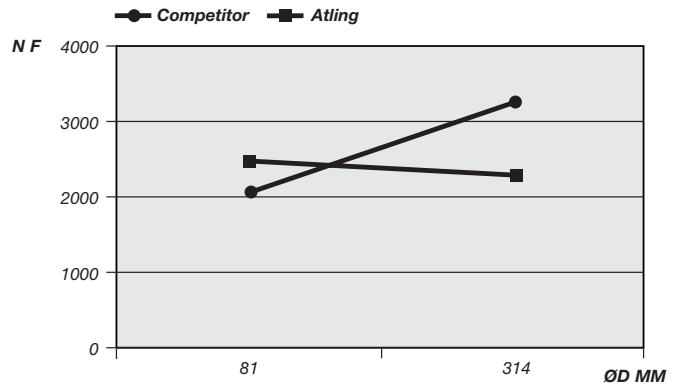


Comparison against competitors

Gripping force

As a result of our unique patent, we achieve precise contact between the guide rollers and the machines angle of the levers, giving us the most consistant range of gripping force throughout the industry.

Tempered and hardened steel surfaces and accurately machined working components give us 5 times more accuracy over our competition. This unique design allows for a larger gripping range in a more compact housing. This means less machine sheet metal modification is necessary.

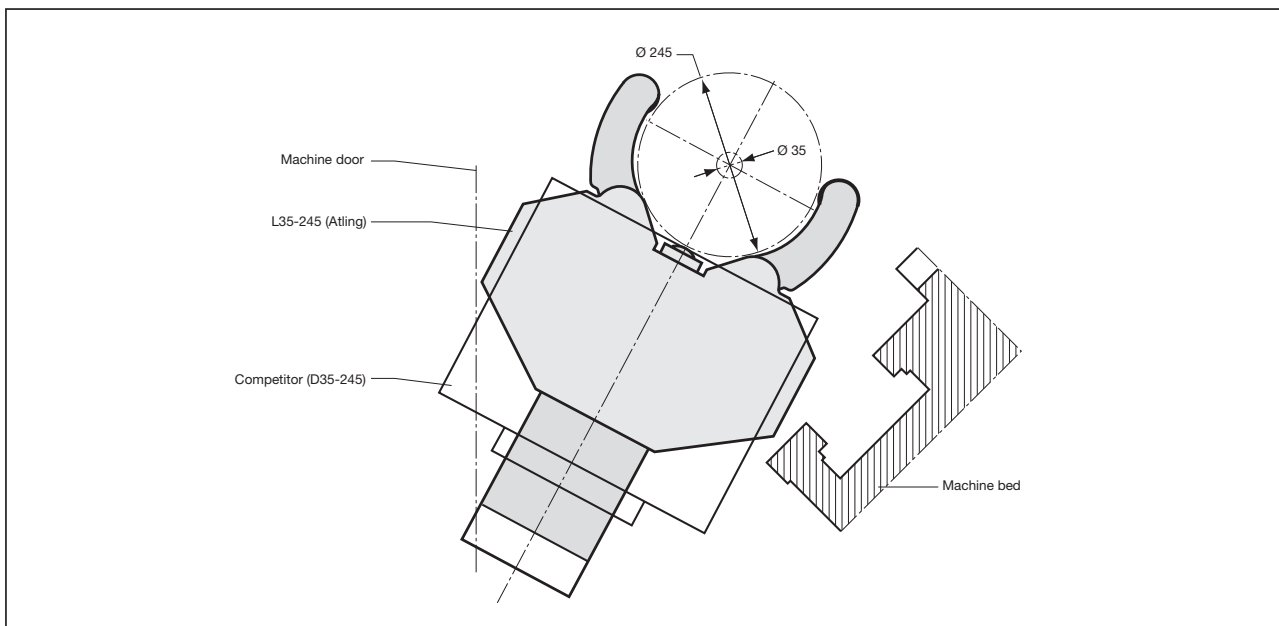


C: (Competitor)

$$\left. \begin{array}{l} \text{ØD} = 81 \text{ mm} \rightarrow F = 2085 \text{ N} \\ \text{ØD} = 314 \text{ mm} \rightarrow F = 3272 \text{ N} \end{array} \right\} \frac{3272 - 2085}{3272} = 36.3 \%$$

L: (Atling)

$$\left. \begin{array}{l} \text{ØD} = 81 \text{ mm} \rightarrow F = 2485 \text{ N} \\ \text{ØD} = 311 \text{ mm} \rightarrow F = 2307 \text{ N} \end{array} \right\} \frac{2485 - 2307}{2485} = 7.2 \%$$



Example of compact design.



Request for quote/order form

If you have require a specially designed Steady Rest,
please fill in this form and send it by FAX to ATLINGS MASKINFABRIK AB:

Workpiece			X		X	Ident.-No.	Comments
Type of Machining	Turning			Grinding			
Mode of operation	Fixed			Travelling			Page 13
Workpiece							
Workpiece diameter	Min.	[mm]		Max.	[mm]		
Workpiece weight	Max.	[kg]					

Steady rest data

Gripping range	Min.	[mm]		Max.	[mm]		
Lubrication	Central			Manual			Page 5
Stroke control	Yes			No			Page 5
Swing-away lever	Yes			No			Page 5
Cylinder location	Rear			Side			Page 13
Cylinder diameter		[mm]					
Cylinder operation	Hydraulic			Pneumatic			
Special actuation							
Rollers	Diameter	[mm]		Width	[mm]		Page 10
Rollers	Cylindrical			Cambered			Page 10
Roller wiper seal	Yes			No			Page 10
Workpiece wiper seal	Yes			No			Page 11
Rotating coupling, (turret appl.)	Yes			No			Page 13

Grinding operation steady rests

Locking sleeve	Yes			No			Page 13
Slide plate	Yes			No			Page 13

Crank- and Cam-shaft steady rests

Gripping diameter		[mm]					Page 13
Max Turning diameter		[mm]					Page 13
Max Lever width		[mm]					Page 13

Mounting bracket

Machine tool manufacturer	
Machine, type	
Machine-No.	
Year	

Company _____

Name _____

Dept. _____

Address _____

City/Country _____

Phone No. _____

Fax-No. _____

ATLINGS MASKINFABRIK AB

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