



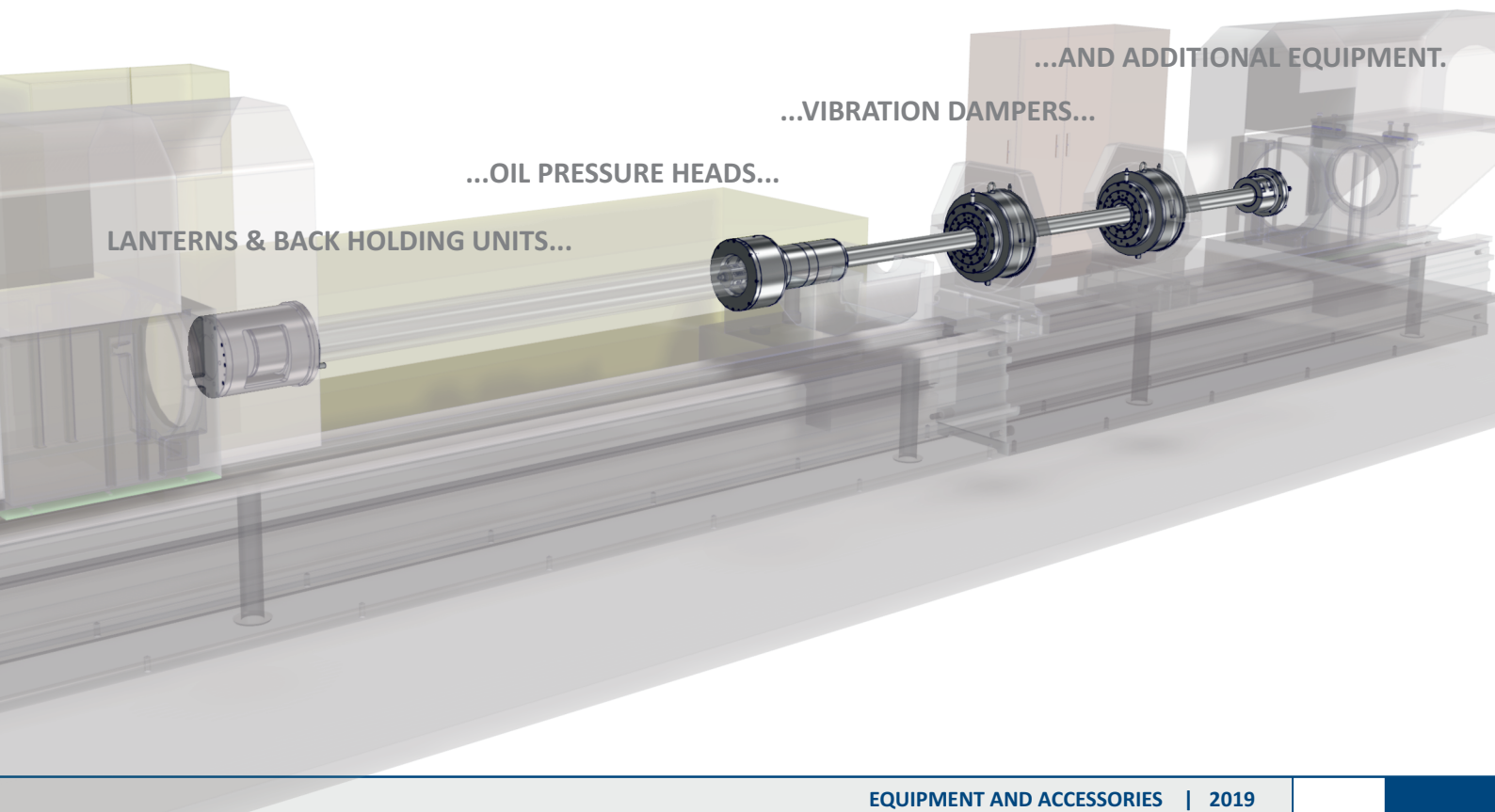
TiefbohrSysteme[®] GmbH

DEEP HOLE BORING TECHNOLOGY | EQUIPMENT

Equipment and Accessories

Passion for precision

ACCESSORIES FOR DEEP HOLE
DRILLING MACHINES IN BTA-PROCESS



Deep Hole Boring - An Inaccessible World

In today's production world, precision and production strategies are a significant constituent for success. The more complex the production process, the more important are these two factors. Deep hole boring our company, **BTA-Tiefbohrsysteme GmbH**, is the essential partner for implementation even under difficult marginal conditions with high requirements. We are the only company in the world capable of offering our customers everything from inserts to complete, suitable equipment for deep hole boring machines. Our experienced experts are always at your side to ensure proper support from planning your deep hole boring project up to tool services. All this is aimed at your success.

In the company-owned application and research department we can test innovations and special designed tools, customize the tools to user-specific material and train their operators. You will receive tools customized for your application and benefit from our experience.

Our tool systems offer you the following advantages:

- Tools designed for various processes (solid boring, trepanning, counter boring and skiving) with the same effective elements, especially such as inserts and guides. This results in extremely low stocks and simple handling.
- Suitable selection possibilities for tools, corresponding to required boring quality, from simple solid boring to form boring.
- Custom layout of tools for various production requirements to straightness, surface, material and constant wall thickness.
- Equipment matched to the deep hole boring process - from workpiece clamping to vibration damping.
- Production-optimized machinery layout for reducing setup and conversion times.

Here are a few results from production boring with our tools:

- Surface $Ra < 0.1 \mu m$ e.g. by skiving and roller burnishing
- Mismatch of axes $< 0.1 mm/m$ e.g. by pull counter boring
- Hole accuracy $< IT8$ e.g. by skiving

Benefit from these advantages by cooperating with a strong partner.

BTA-Tiefbohrsysteme GmbH

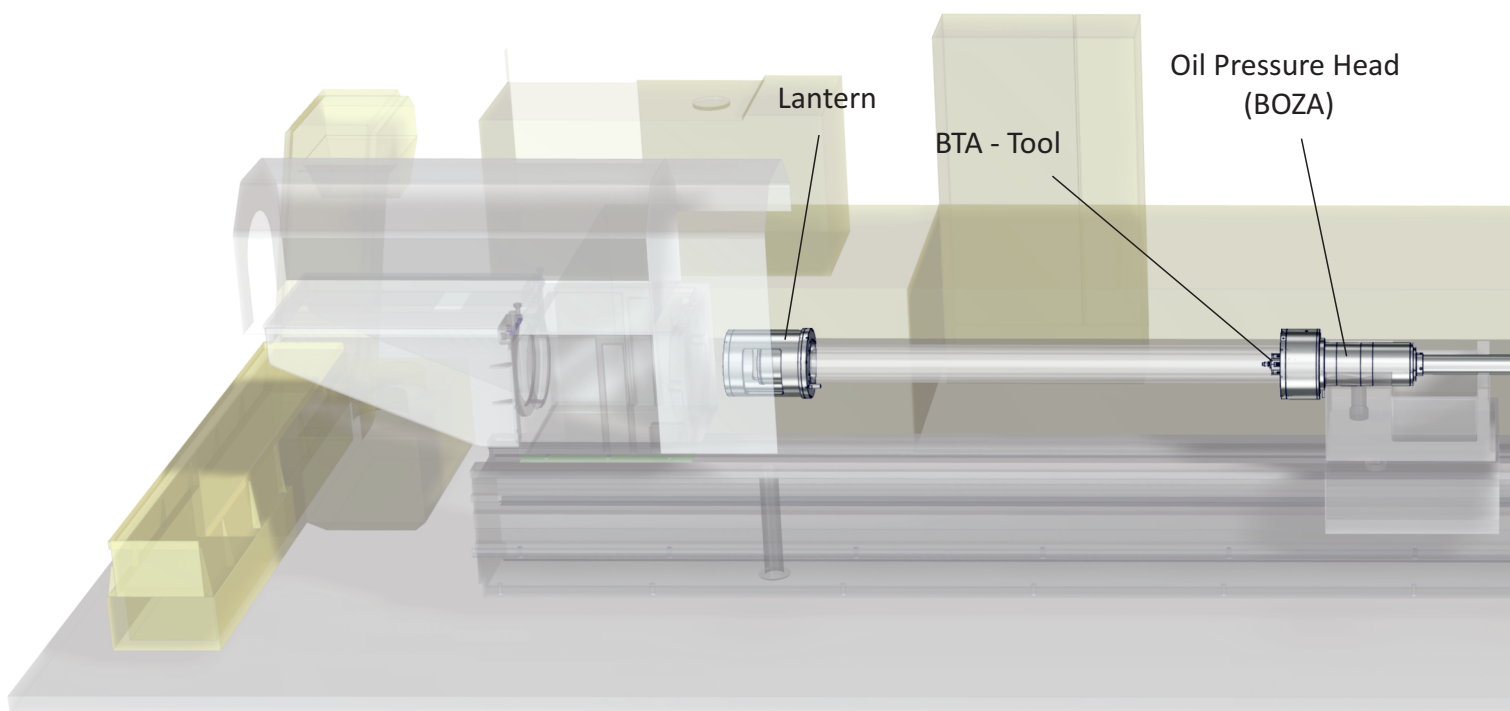


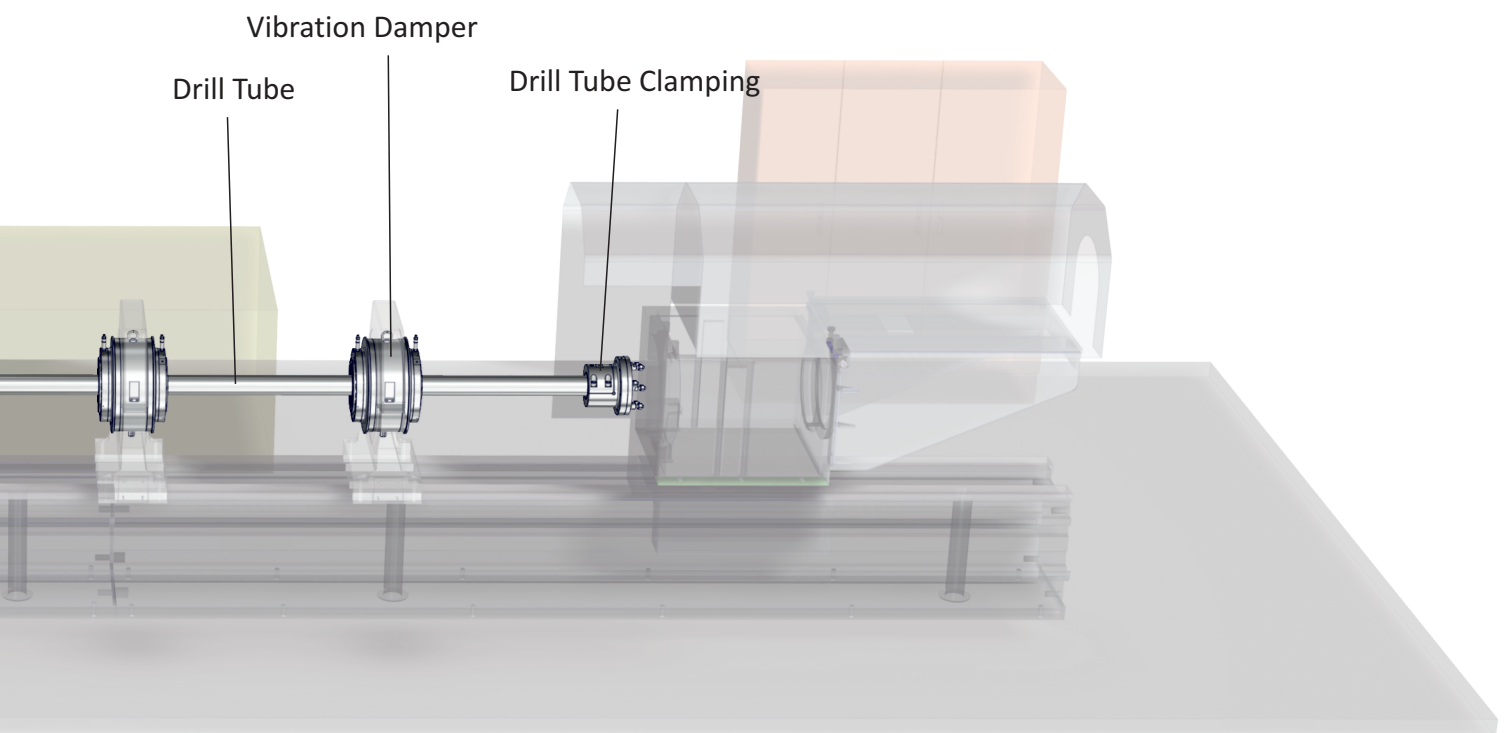


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Overview delivery program





BOZA Type 2210

Oil Pressure Head with non-rotating Workpiece Reception

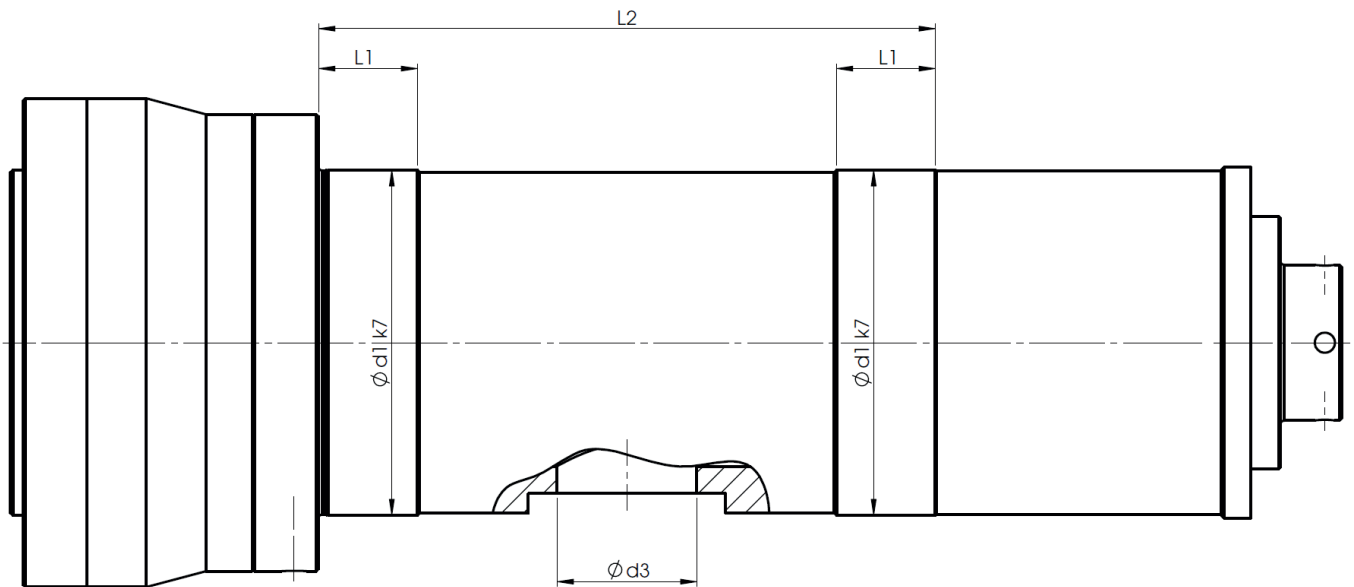
Oil pressure head with non-rotating reception cone for holding, centering and sealing the workpiece. The oil pressure head consists of a basic unit and variable components (workpiece reception / boring bush reception / boring bush / Reduction unit / boring bar guide). Tool rotating. Workpiece shaped as required, however a cylindrical projection is required for clamping. When workpiece weight is very high, use roller steady or similar.



BOZA Size	Boring Range	Boring Bush Range
1	Ø 6,51 - Ø 18,00	01
2	Ø 18,01 - Ø 36,99	02
3	Ø 18,01 - Ø 56,99	02 / 03
4	Ø 37,00 - Ø 90,99	03 / 04 / 05
5	Ø 57,00 - Ø 134,99	04 / 05 / 06 / 07
6	Ø 91,00 - Ø 173,99	06 / 07 / 08 / 09
7	Ø 135,00 - Ø 293,99	08 / 09 / 10 / 11 / 12 / 13
8	Ø 270,00 - Ø 401,99	13 / 14 / 15 / 16



Minimum Outline Dimensions for BOZA Type 2210

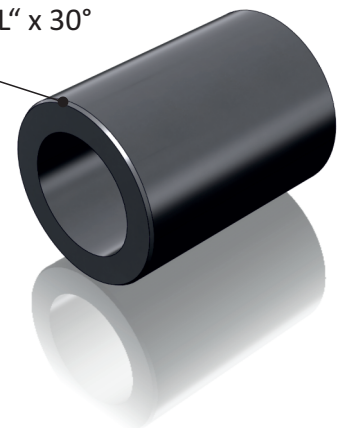


BOZA 2210				
Size	$d1_{k7}$	$d3$	L2	L1
1	80	G1"	250	30
2	80	G1"	250	30
3	100	G1"	250	30
4	140	G2"	250	40
5	180	G2"	250	40
6	230	G2"	250	62
7	355	G2½"	300	62
8	490	G2½"	354	70

Additional outline dimensions on request

Workpiece preparation

Chamfer: Length „L“ x 30°



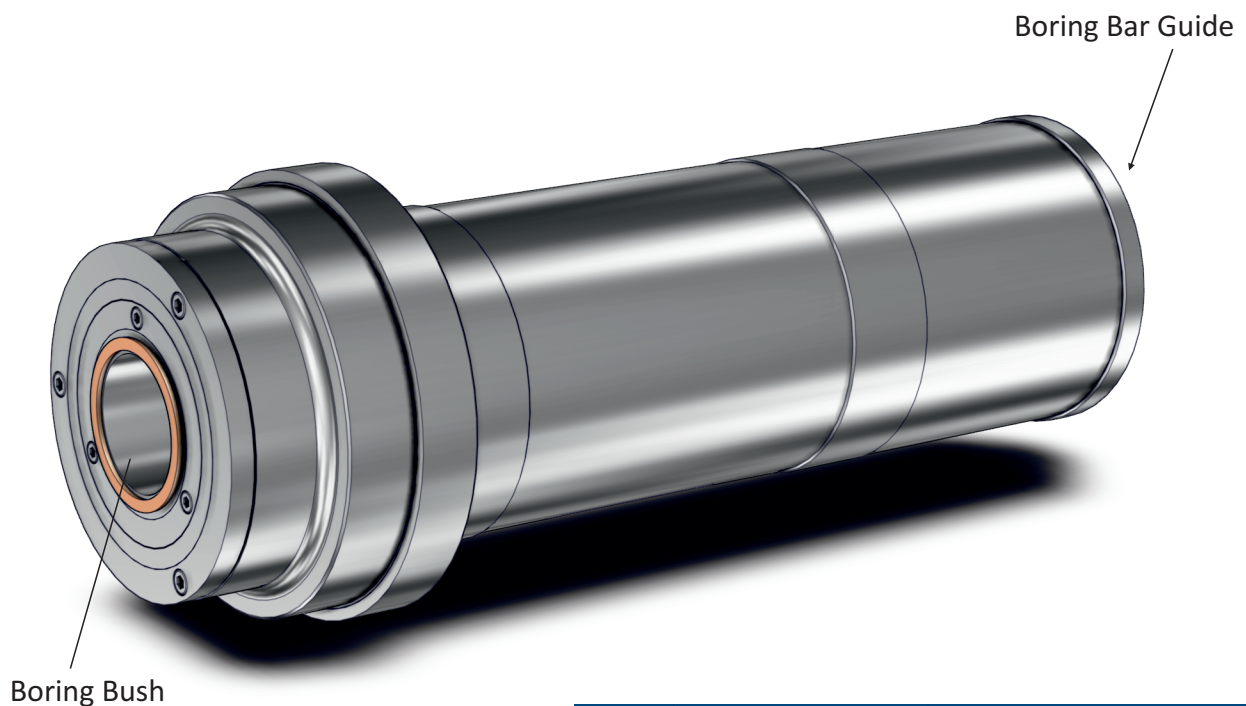
Clamping diameter	L
\varnothing ... - \varnothing 100	2
\varnothing 100 - \varnothing 300	3
\varnothing 300 - \varnothing ...	5

BOZA Type 2220

Oil Pressure Head with non-rotating Workpiece Reception.

Oil pressure head with non-rotating flat seal (soft sealing ring or hardened annular cutting edge). The oil pressure head consists of a basic unit and variable components (boring bush reception / boring bush / reduction unit / boring bar guide).

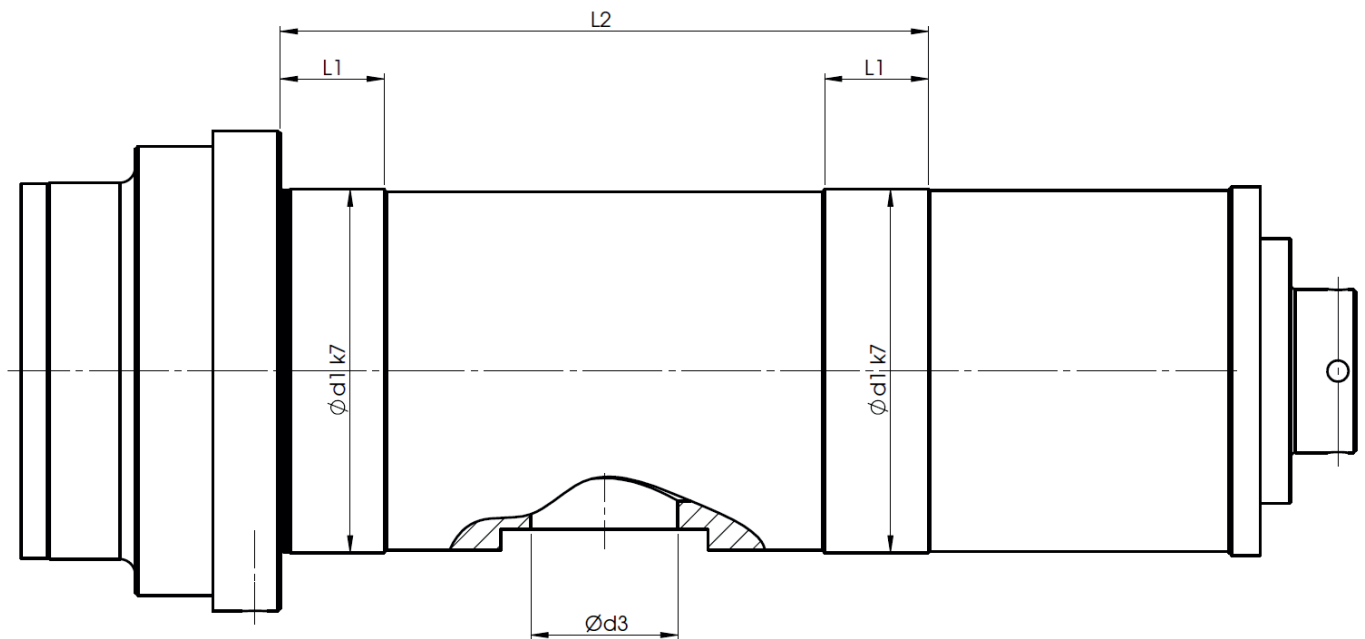
Tool rotates. Workpiece shaped as required, held in a jig on or outside of the machine. Bore starting surface must be flat.



BOZA Size	Boring Range	Boring Bush Range
1	Ø 6,51 - Ø 18,00	01
2	Ø 18,01 - Ø 36,99	02
3	Ø 18,01 - Ø 56,99	02 / 03
4	Ø 37,00 - Ø 90,99	03 / 04 / 05
5	Ø 57,00 - Ø 134,99	04 / 05 / 06 / 07
6	Ø 91,00 - Ø 173,99	06 / 07 / 08 / 09
7	Ø 135,00 - Ø 293,99	08 / 09 / 10 / 11 / 12 / 13
8	Ø 270,00 - Ø 401,99	13 / 14 / 15 / 16



Minimum Outline Dimensions for BOZA Type 2220



BOZA 2220				
Size	$d1_{k7}$	$d3$	$L2$	$L1$
1	80	G1"	250	30
2	80	G1"	250	30
3	100	G1"	250	30
4	140	G2"	250	40
5	180	G2"	250	40
6	230	G2"	250	62
7	355	G2½"	300	62
8	490	G2½"	354	70

Additional outline dimensions on request

BOZA Type 2250

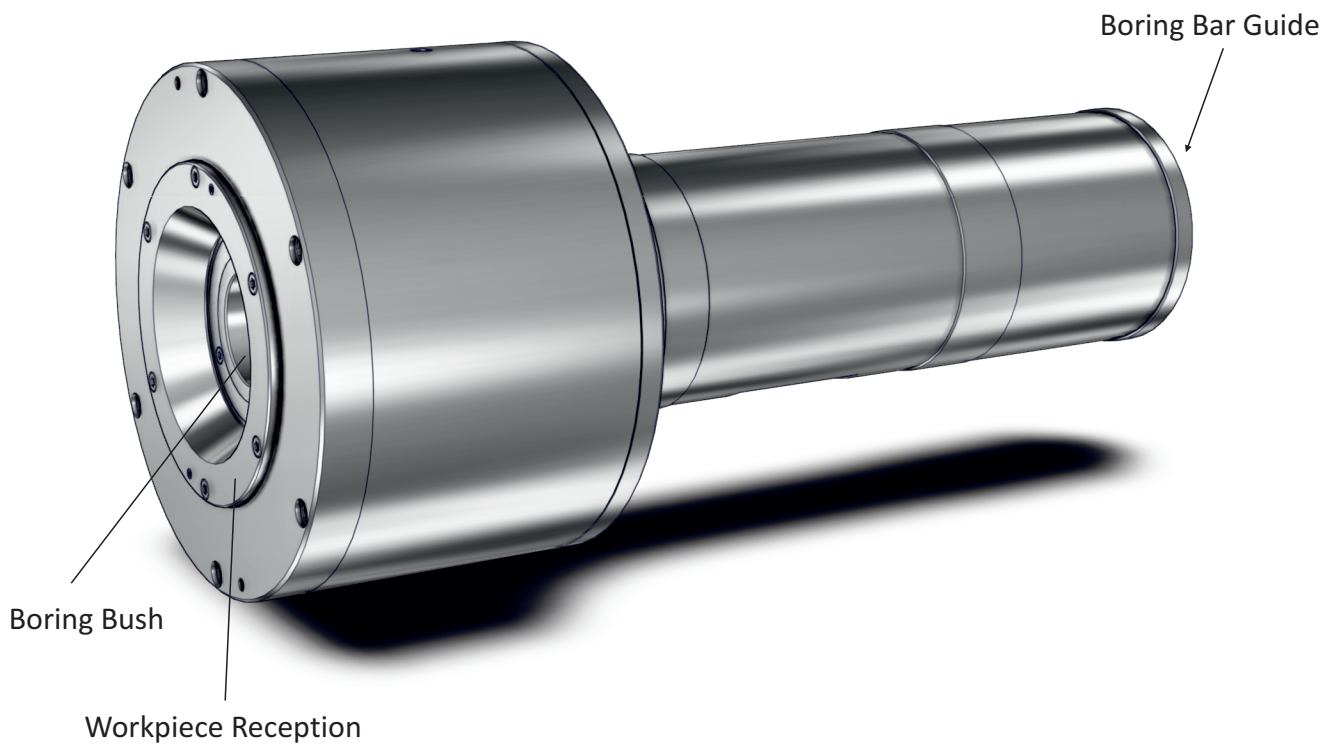
Oil Pressure Head with rotating Workpiece Reception.

Oil pressure head with rotating workpiece reception cone for holding, centering and sealing the workpiece. The oil pressure head consists of a basic unit and variable components (workpiece reception / boring bush reception / boring bush / reduction unit / boring bar guide).

Tool rotating or stationary.

Workpiece rotationally symmetrical, rotating.

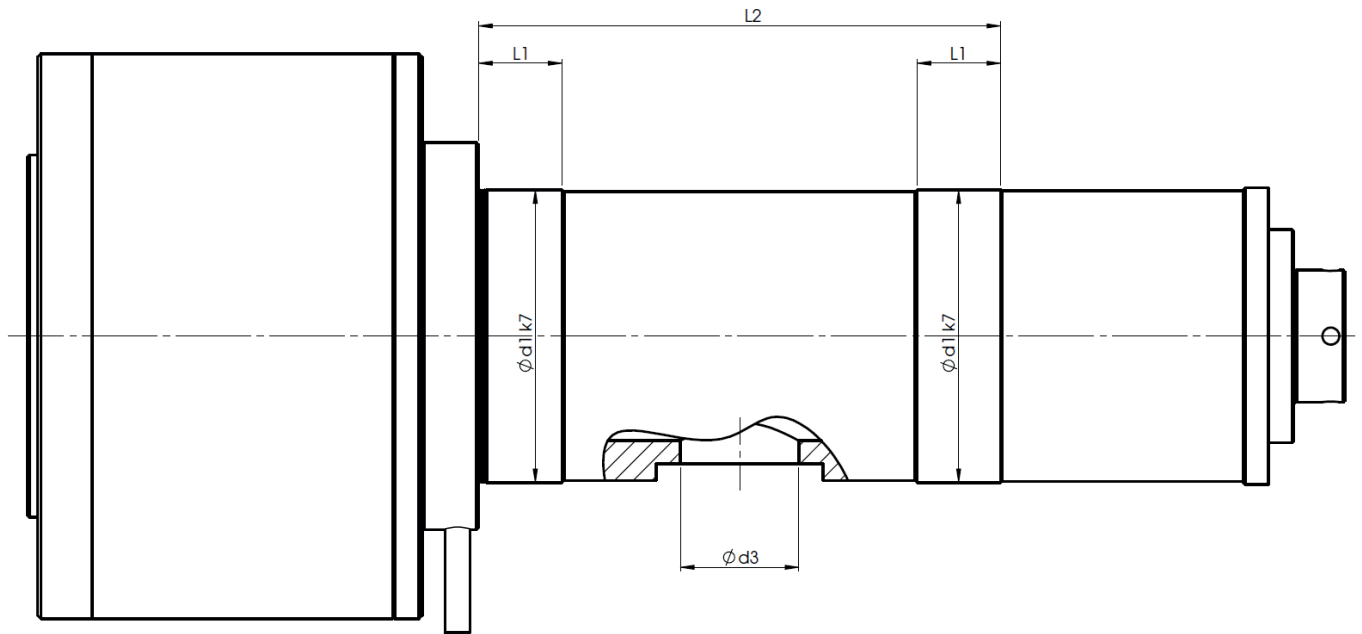
When workpiece weight is very high, use roller steady.



BOZA Size	Boring Range	Boring Bush Range
1	Ø 6,51 - Ø 18,00	01
2	Ø 18,01 - Ø 36,99	02
3	Ø 18,01 - Ø 56,99	02 / 03
4	Ø 37,00 - Ø 90,99	03 / 04 / 05
5	Ø 57,00 - Ø 134,99	04 / 05 / 06 / 07
6	Ø 91,00 - Ø 173,99	06 / 07 / 08 / 09
7	Ø 135,00 - Ø 293,99	08 / 09 / 10 / 11 / 12 / 13
8	Ø 270,00 - Ø 401,99	13 / 14 / 15 / 16



Minimum Outline Dimensions for BOZA Type 2250

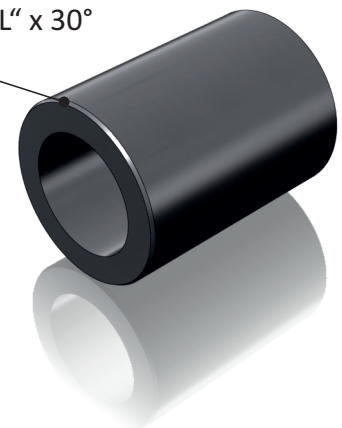


BOZA 2250				
Size	$d1_{k7}$	$d3$	L2	L1
1	80	G1"	250	30
2	80	G1"	250	30
3	100	G1"	250	30
4	140	G2"	250	40
5	180	G2"	250	40
6	230	G2"	250	62
7	355	G2½"	300	62
8	490	G2½"	354	70

Additional outline dimensions on request

Workpiece preparation

Chamfer: Length „L“ x 30°



Clamping diameter	L
ϕ ... - ϕ 100	2
ϕ 100 - ϕ 300	3
ϕ 300 - ϕ ...	5

BOZA Type 2270

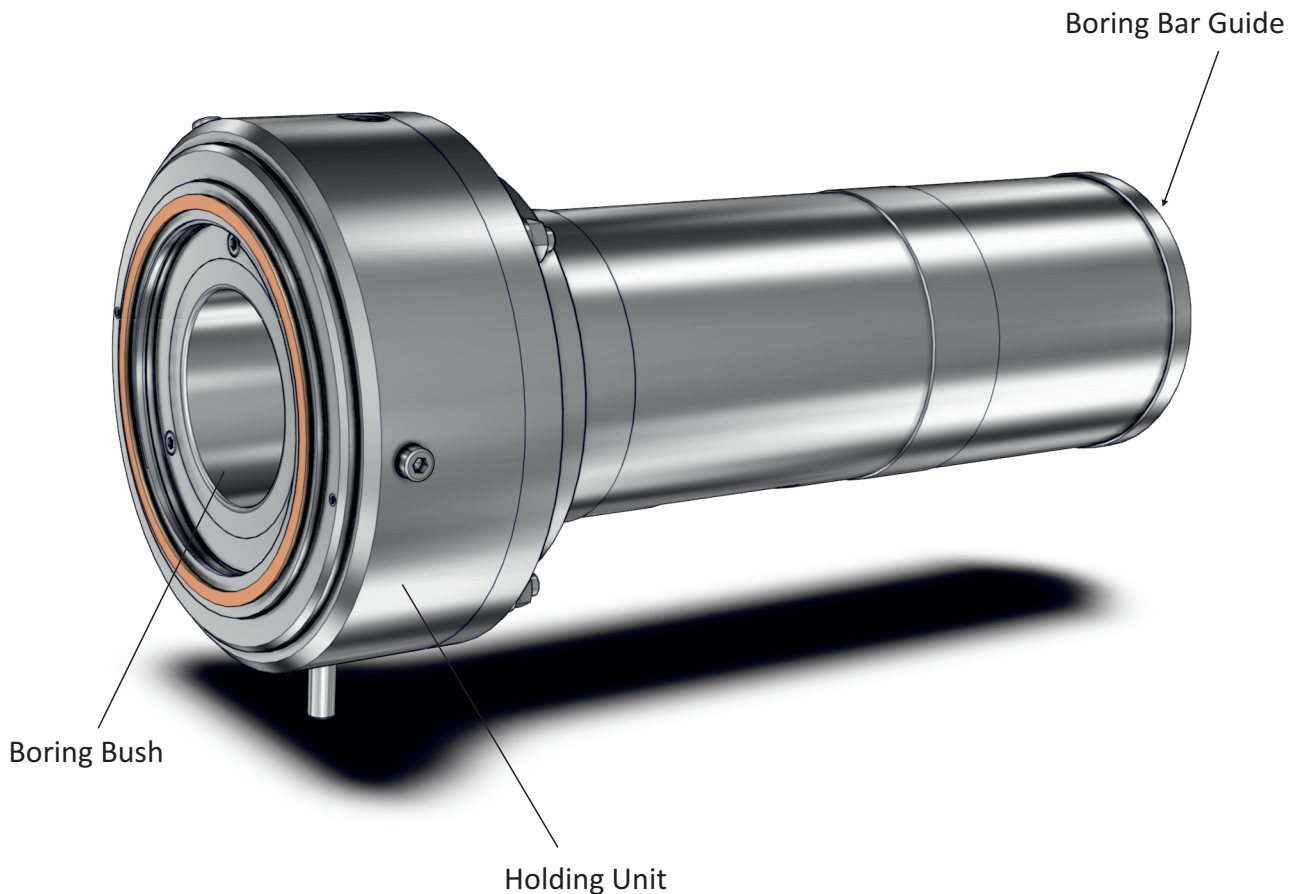
Oil Pressure Head for rotating Workpieces

Oil pressure head with rotating flat seal pressed against workpiece by pressure of cooling lubricant, capable of providing compensation for thermal expansion. The pressing force is generated by the oil pressure head. The oil pressure head consists of a basic unit and variable components (boring bush reception / boring bush / reduction unit / boring bar guide).

Tool rotating or stationary.

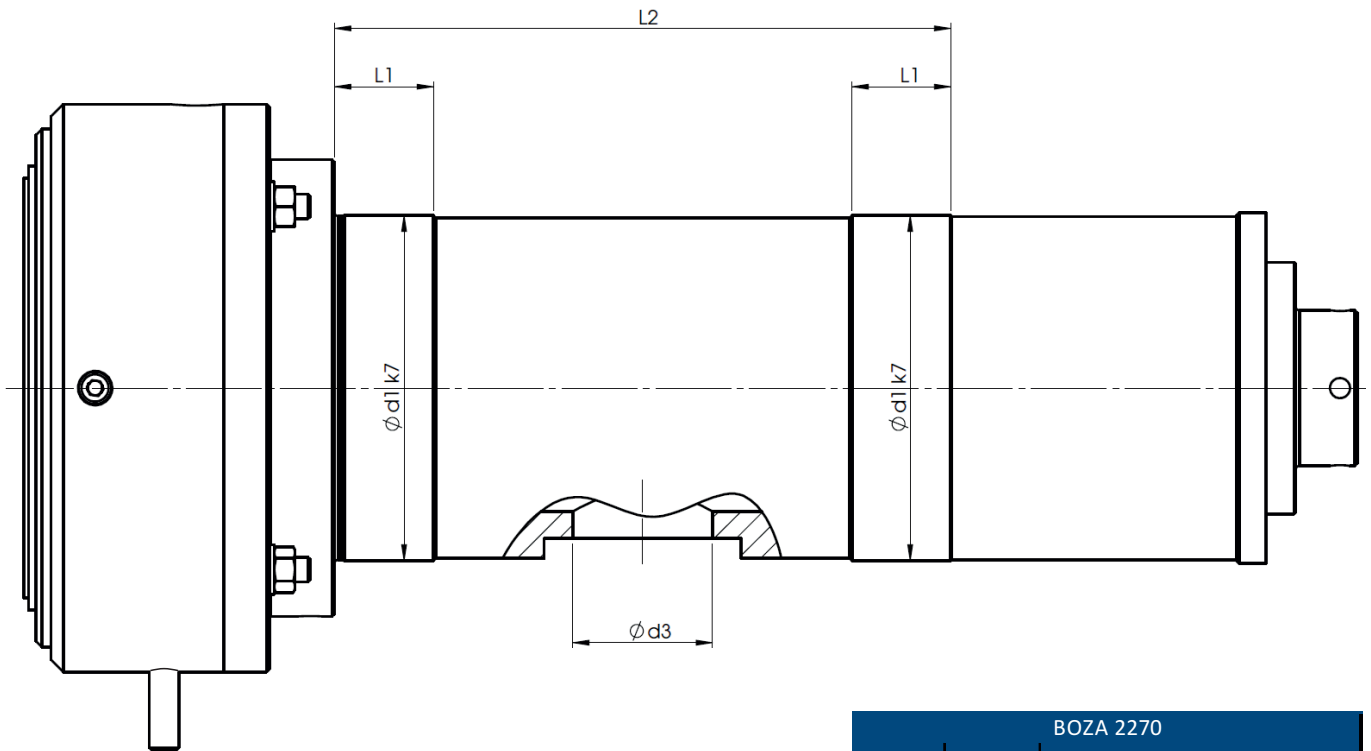
Workpiece rotationally symmetrical running in roller steadies.

Bore starting surface must be flat.





Minimum Outline Dimensions for BOZA Type 2270

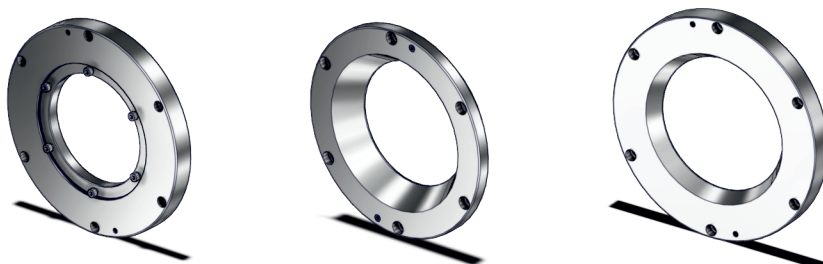


BOZA Size	Boring Range	Boring Bush Range
1	Ø 6,51 - Ø 18,00	01
2	Ø 18,01 - Ø 36,99	02
3	Ø 18,01 - Ø 56,99	02 / 03
4	Ø 37,00 - Ø 90,99	03 / 04 / 05
5	Ø 57,00 - Ø 134,99	04 / 05 / 06 / 07
6	Ø 91,00 - Ø 173,99	06 / 07 / 08 / 09
7	Ø 135,00 - Ø 293,99	08 / 09 / 10 / 11 / 12 / 13
8	Ø 270,00 - Ø 401,99	13 / 14 / 15 / 16

BOZA 2270				
Size	d1 _{k7}	d3	L2	L1
1	80	G1"	250	30
2	80	G1"	250	30
3	100	G1"	250	30
4	140	G2"	250	40
5	180	G2"	250	40
6	230	G2"	250	62
7	355	G2½"	300	62
8	490	G2½"	354	70

Additional outline dimensions on request

Accessories - BOZA 2210/2250



Workpiece Reception for BOZA Type 2210 - NON-ROTATING

BOZA Size	Reception Flange	Workpiece Reception (insert) max. Workpiece-Ø	Workpiece Reception (direct) max. Workpiece-Ø
1	-	-	70
2	-	-	80
3	Size 3	80	105
4	Size 4	80	140
5	Size 5	110	185
6	Size 6	135	220
7	Size 7	220	340
8	Size 8	350	480

Workpiece Reception for BOZA Type 2250 - ROTATING

BOZA Size	Reception Flange	Workpiece Reception (insert) max. Workpiece-Ø	Workpiece Reception (direct) max. Workpiece-Ø
1	-	-	70
2	-	-	100
3	Size 3	80	120
4	Size 4	105	165
5	Size 5	150	220
6	Size 6	190	270
7	Size 7	280	390
8	Size 8	360	580

Thick walled workpieces require special designed receptions.
Please always request.



Accessories - BOZA 2210/2220/2250/2270

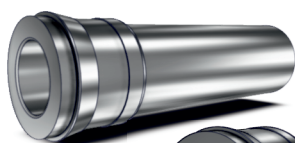
Boring Bush and Boring Bar Guides
for range Ø6,51 - 401,99



BOZA Size	Boring Range	Boring Bush Range	Boring Bush Reception	Holding Unit	Reduction Unit for Boring Bar Guide	Boring Bar Guide for Drill Tube
1	Ø 6,51 - Ø 18,00	01	-	Size 1 to Range 01	-	6 - 15
2	Ø 18,01 - Ø 36,99	02	-	Size 2 to Range 02	-	16,5 - 30
3	Ø 18,01 - Ø 36,99	02	Size 3 to Range 02	Size 3 to Range 02	3 on 2	16,5 - 30
	Ø 37,00 - Ø 56,99	03	Boring Bush direct	Size 3 to Range 03	Boring Bar Guide direct	33 - 47
4	Ø 37,00 - Ø 56,99	03	Size 4 to Range 03	Size 4 to Range 03	4 on 3	33 - 47
	Ø 57,00 - Ø 74,99	04	Size 4 to Range 04	Size 4 to Range 04	Boring Bar Guide direct	51 - 75
	Ø 75,00 - Ø 90,99	05	Boring Bush direct	Size 4 to Range 05		
5	Ø 57,00 - Ø 74,99	04	Size 5 to Range 04	Size 5 to Range 04	5 on 3	33 - 47
	Ø 75,00 - Ø 90,99	05	Size 5 to Range 05	Size 5 to Range 05	5 on 4	51 - 75
	Ø 91,00 - Ø 110,99	06	Size 5 to Range 06	Size 5 to Range 06	Boring Bar Guide direct	82 - 118
	Ø 111,00 - Ø 134,99	07	Boring Bush direct	Size 5 to Range 07		
6	Ø 91,00 - Ø 110,99	06	Size 6 to Range 06	Size 6 to Range 06	6 on 4	51 - 75
	Ø 111,00 - Ø 134,99	07	Size 6 to Range 07	Size 6 to Range 07	6 on 5	82 - 118
	Ø 135,00 - Ø 148,99	08	Size 6 to Range 08	Size 6 to Range 08	Boring Bar Guide direct	130 - 154
	Ø 149,00 - Ø 173,99	09	Boring Bush direct	Size 6 to Range 09		
7	Ø 135,00 - Ø 148,99	08	Size 7 to Range 08	Size 7 to Range 08	7 on 5	82 - 118
	Ø 149,00 - Ø 173,99	09	Size 7 to Range 09	Size 7 to Range 09	7 on 6	130 - 154
	Ø 174,00 - Ø 209,99	10	Size 7 to Range 10	Size 7 to Range 10	Boring Bar Guide direct	166 - 286
	Ø 210,00 - Ø 233,99	11	Size 7 to Range 11	Size 7 to Range 11		
	Ø 234,00 - Ø 269,99	12	Size 7 to Range 12	Size 7 to Range 12		
8	Ø 270,00 - Ø 293,99	13	Boring Bush direct	Size 7 to Range 13	8 on 7	262 - 286
	Ø 270,00 - Ø 293,99	13	Size 8 to Range 13	Size 8 to Range 13		
	Ø 294,00 - Ø 329,99	14	Size 8 to Range 14	Size 8 to Range 14	Boring Bar Guide direct	298 - 382
	Ø 330,00 - Ø 365,99	15	Size 8 to Range 15	Size 8 to Range 15		
	Ø 366,00 - Ø 401,99	16	Boring Bush direct	Size 8 to Range 16		

Special designed Bushes:

- Extra long Boring Bush



- Guide Bush (Boring Bush in unhardened design)



- Boring Bush with Sealing Ring (only for BOZA 2220)



- Boring Bush with Knife Edge Seal (only for BOZA 2220)

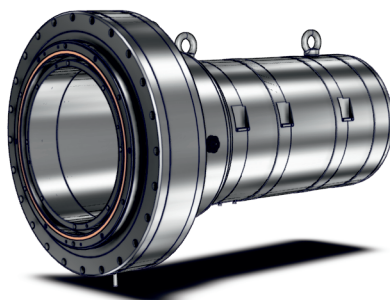


Special designed Oil Pressure Heads

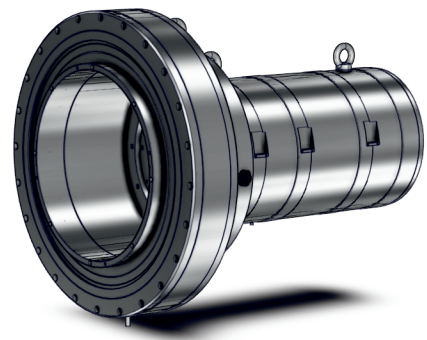
BOZA for Boring- \varnothing > 400mm - ROTATING



BOZA 500
for Boring- \varnothing 300 - 500 mm

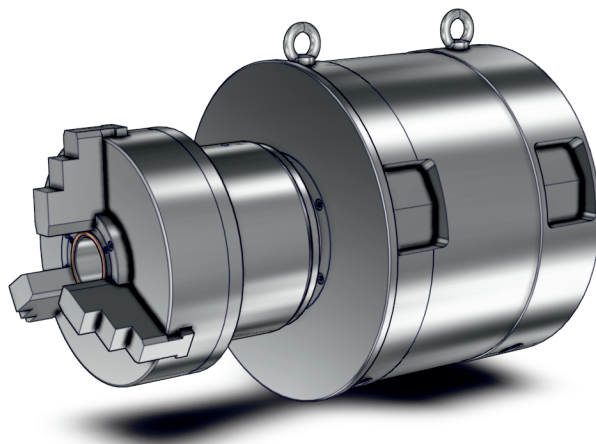


BOZA 800
for Boring- \varnothing 400 - 800 mm



BOZA 1000
for Boring- \varnothing 500 - 1000 mm

BOZA with Chuck



For additional information please contact us



Lanterns and Back Holding Units

Lantern TYPE 3210 - rotating

Lantern with rotating clamping cone or chuck for holding, centering and sealing of the workpiece. The lantern consists of a basic unit and variable components (Workpiece reception / boring bush reception / boring drill bush / Reduction Unit / boring bar guide). Tool rotating or stationary.

Workpiece rotationally symmetrical.

When the lantern is very long and workpiece weight very high, use roller steady.

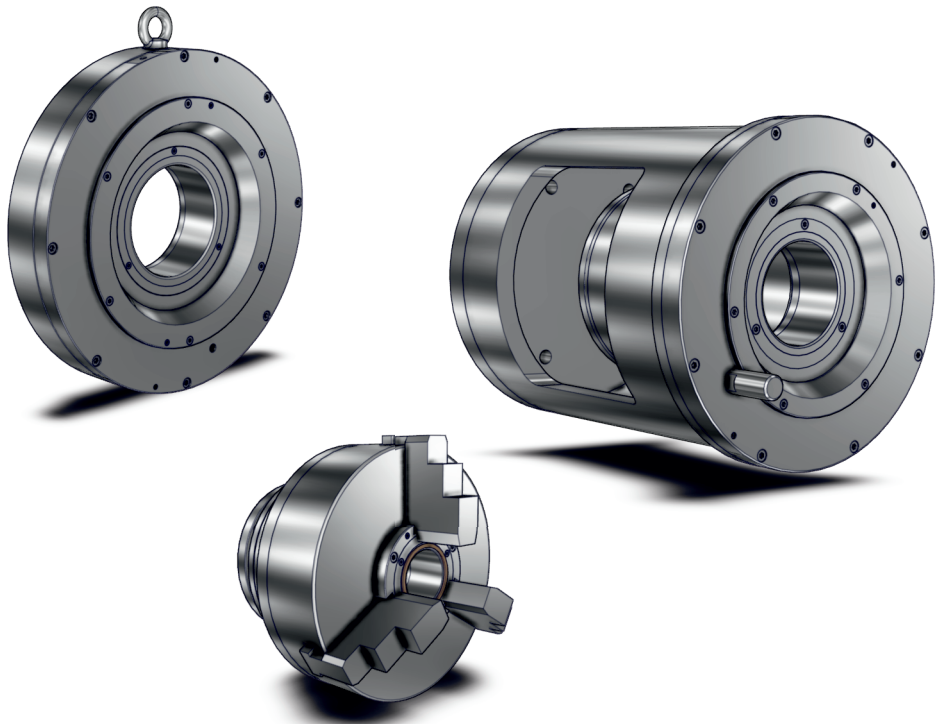
Back Holding Unit TYPE 3230 - non-rotating

Counter-holding unit with non-rotating clamping cone or chuck for holding, centering and sealing of the workpiece. The counter-holding unit consists of a basic unit and variable components (workpiece reception / boring bush reception / boring bush / Reduction unit / boring bar guide).

Tool rotates.

Workpiece shaped as required, however with cylindrical appendage for clamping. When workpiece weight is very high, use roller steady.

BOZA Size	Boring Range
1	Ø 6,51 - Ø 18,00
2	Ø 18,01 - Ø 36,99
3	Ø 18,01 - Ø 56,99
4	Ø 37,00 - Ø 90,99
5	Ø 57,00 - Ø 134,99
6	Ø 91,00 - Ø 173,99
7	Ø 135,00 - Ø 293,99
8	Ø 270,00 - Ø 401,99



Vibration Damper TYPE 3350 / 3450 / 3550

Manual and Hydraulically operated design

Vibration dampers guide and stabilize the boring bar. Use of such dampers reduces torsion and flexural vibration and prevents buckling.

Vibration dampers rotate during operation and can be opened and closed during machining. Manual dampers require free access during machining.

Hydraulic dampers are used in automated machines and can be controlled by a suitable machine control or separately.

Manually operated design
TYPE 3350



Hydraulically operated design
TYPE 3450



Hydraulically operated design
TYPE 3550

(for pushed and pulled machining
without conversation)

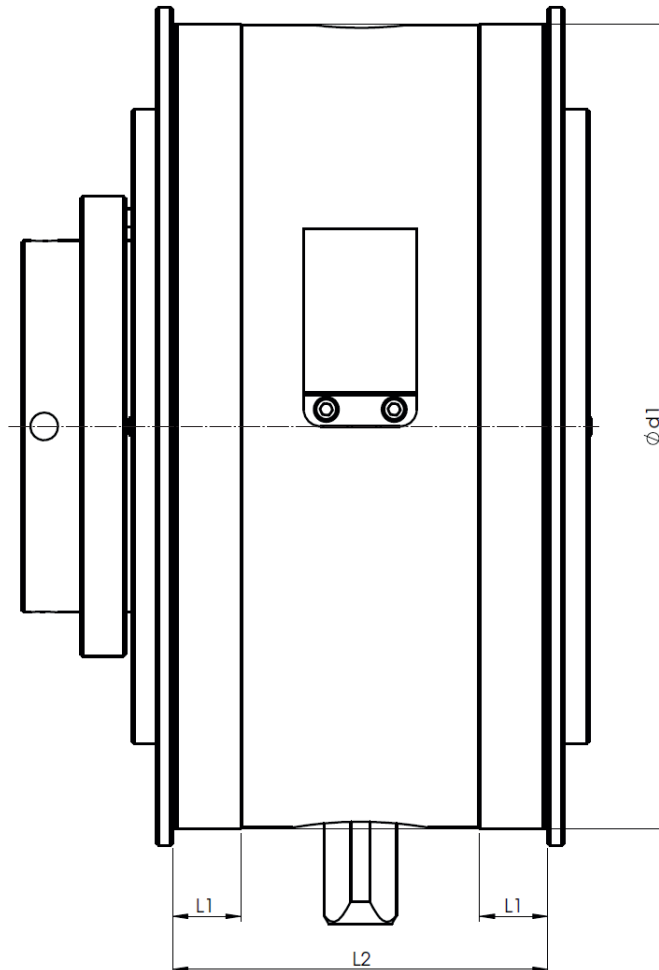


Drill Tube ranges, Sizes and Connection dimensions on request.



Vibration Damper TYPE 3350 manual design

Minimum outline dimensions

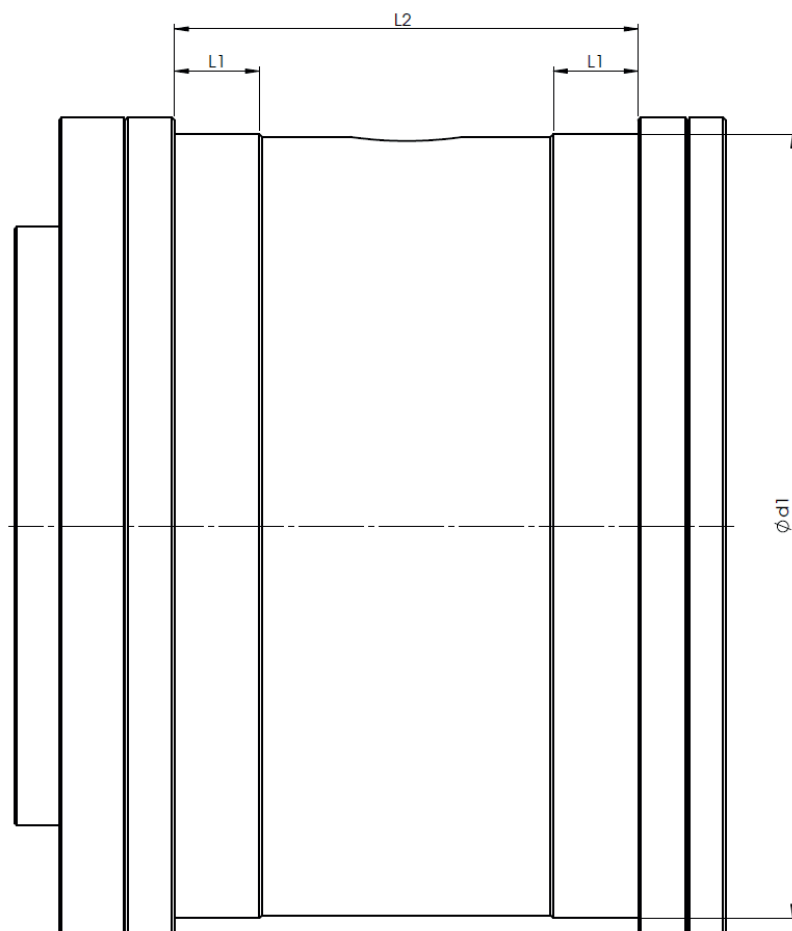


SD - Type 3350				
Size	Drill Tube	d1 _{k7}	L2	L1
2,0	16,5 - 30	180	135,5	30
3,0	16,5 - 47	280	165,5	
3,5	30 - 62			
4,0	33 - 75			
4,5	43 - 94			
5,0	56 - 118	355		
6,0	68 - 154			
6,5	94 - 190	490	200,5	
7,0	118 - 226			
7,5	130 - 286	560		

Additional outline dimensions on request

Vibration Damper TYPE 3450/3550 hydraulically design

Minimum outline dimensions



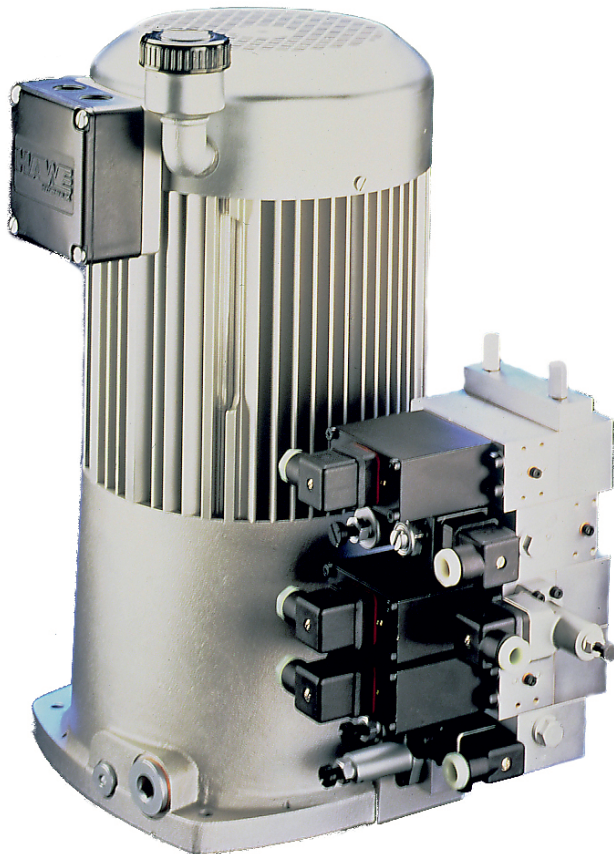
SD - Type 3450/3550				
Size	Drill Tube	d1 _{k7}	L2	L1
2,0	16,5 - 30	180	135,5	30
3,0	16,5 - 47	280	165,5	
3,5	30 - 62			
4,0	33 - 75			
4,5	43 - 94			
5,0	56 - 118	355		
6,0	68 - 154			
6,5	94 - 190	490	200,5	
7,0	118 - 226			
7,5	130 - 286	560		

Additional outline dimensions on request



Hydraulic Power Unit

For Hydraulically Vibration Dampers and Tools



Source: HAWE Hydraulik

Boring Bar Clamping Unit TYPE 3270

Collet Chuck and Clamp Collar design

Collet Chuck Boring Bar Clamping Unit

Maximum Drill Tube - \varnothing 47,00 mm

Collet chuck boring bar clamping units are used for small boring bars. Collet chucks to match the required diameter are available on request. The boring bar must be clamped to ensure sufficient coolant and chip discharge.



Clamp Collar Boring Bar Clamping Unit

From Drill Tube - \varnothing 51,00 mm

Split bushes are used to exert pressure on the required boring bar diameter. Reducer shells with sealing plates available on request.



Drill Tube ranges, Sizes and Connection dimensions on request.



Drill Tubes

Thin/Thick walled Drill Tubes with BTA-Thread Type 0010/0300

Thin/Thick walled Drill Tubes with STS-Thread Type 0150/0450

The standard version boring bars are provided with a flat, "single start" male thread (BTA thread) on one end. The threaded end is laid out as a "wear element" on Type 0300. Other thread versions are also possible. They are available as single or multiple piece versions. The maximum length for one-piece boring bars is 6.0 m.

Thick walled

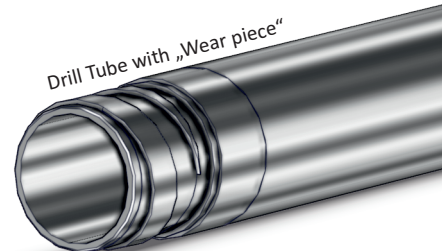
Drill Tube	Drill Tube Inner-Ø
39	24
43	27
47	30
51	33
56	36
62	42
68	48
75	55
82	62
94	68
106	78
118	88
130	100
142	112
154	122
166	132
178	144
190	154
202	166
214	178
226	190
238	202
250	214
262	226
274	238
286	250
298	262
310	274
322	286
334	298
346	310

From-Ø 226 mm Drill Tubes are available with a flanged joint.
When boring with larger Drill Tubes are recommended inner Chip Tubes.

Thin walled

Drill Tube	Drill Tube Inner-Ø
13	8,5
14	9
15	10
* 16	10,5
# 16,5	11
* 17	11,5
18	12
20	13
22	14
24	15,5
26	17
28	18,5
30	20
33	23
36	25,5
39	28
43	31
47	35
51	39
56	43
62	48
68	53
75	59

* only available with STS-Thread.
only available with BTA-Thread.



Additional Accessories:

Thread Adaptor



„Wear piece“





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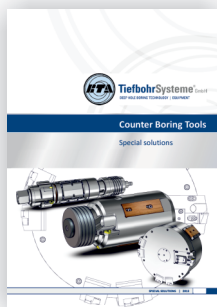
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