KAISER
SERIES 318

Ø7.87"-24.41"

Light Weight Boring Tool System

SUPER LIGHT SYSTEM PROVIDES HIGHEST PRECISION AND PERFORMANCE, AND FEATURES THROUGH-TOOL COOLANT SUPPLY TO THE CUTTING EDGE

The system is based on aluminum extension slides which support a variety of aluminum and steel components for roughing and finishing tool assemblies. The mounting components are pinned to fit onto specific locations on the slides, and secured with steel bolts.

The precise positioning of the components on the slide along with incremental adjustment scales for insert holders permit diameter and length setting without a tool presetter.

The simple handling of components virtually eliminates operator error during assembly and leads to almost 100% safety during operation.

BORING RANGE:

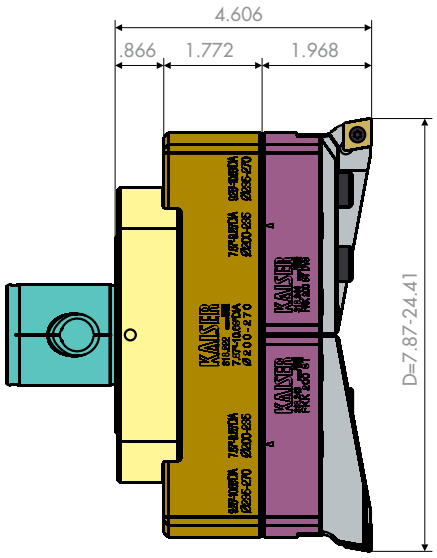
Ø7.87"-13.39" for ISO 40/HSK-A63 tapers
Ø7.87"-24.41" for ISO 50/HSK-A100 and larger tapers (extendable up to 118")

FEATURES:

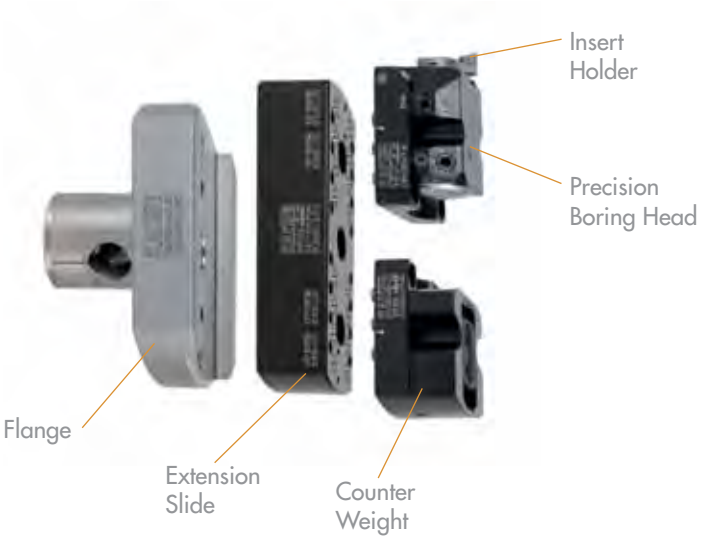
- Versatile system for various applications such as roughing, finishing, pin turning and face grooving
- Coolant supply through all components to the cutting edge
- Absolutely safe mounting of the components on the extension slide for highest safety in operation
- Flanges with CKN connection for highest torque transmission with light weight tools
- High strength and hard coated aluminium, and nickel coated steel components for scratch resistant and rust protected surfaces
- Accurate balancing without balancing machine by means of two-piece counter weight with slide and scale

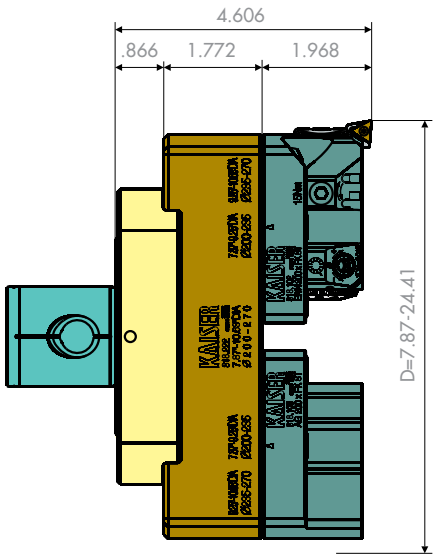
ROUGHING AND FINISHING TOOLS BASED ON CKN7 FOR TOOL SHANKS ISO 50/HSK-A100

Twin Cutter Boring Tool For Roughing



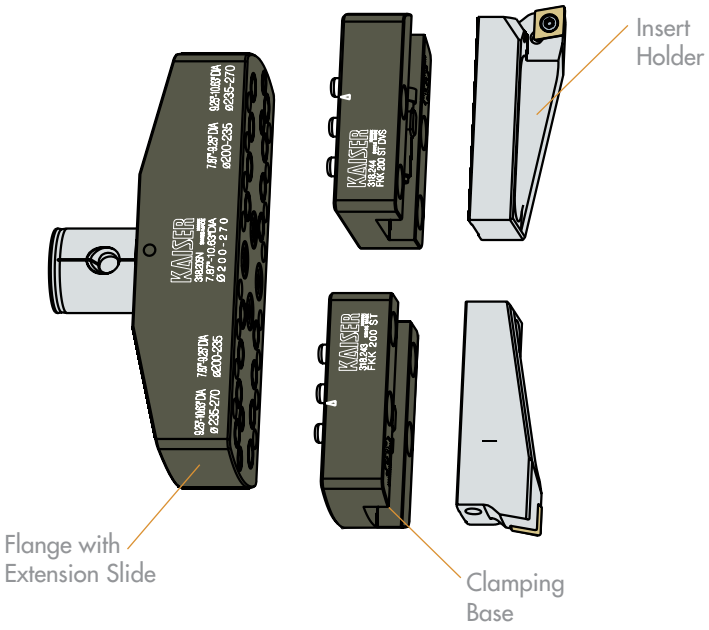
Precision Boring Tool For Finishing

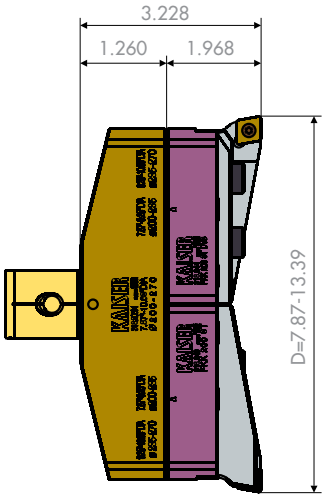




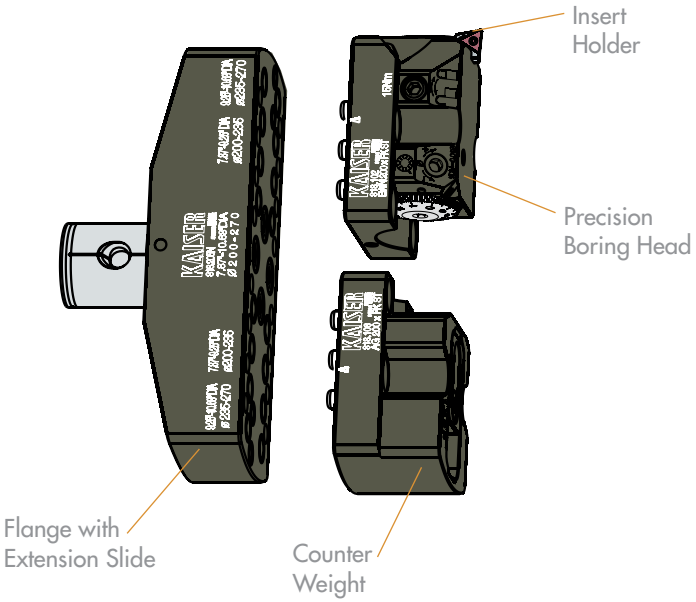
ROUGHING AND FINISHING TOOLS BASED ON CKN6 FOR TOOL SHANKS ISO 40/HSK-A63

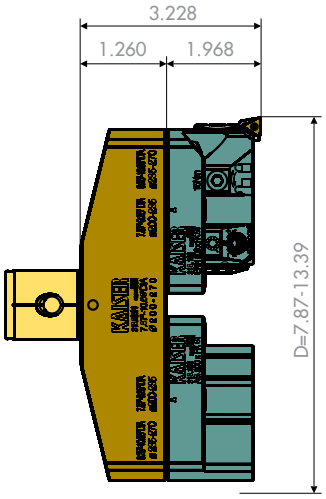
Twin Cutter Boring Tool For Roughing





Precision Boring Tool For Finishing





Flange

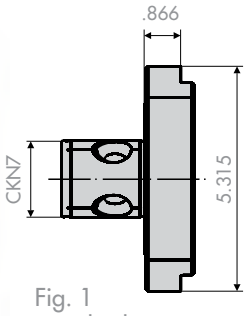


Fig. 1
Standard Execution

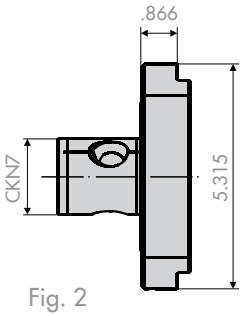
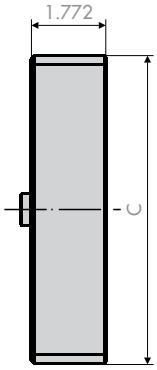


Fig. 2
Cutter Position Rotated 90°

FIG	ADAPTER SIZE	CATALOG NUMBER
1	CKN7	10.318.201N
2	CKN7	10.318.202N

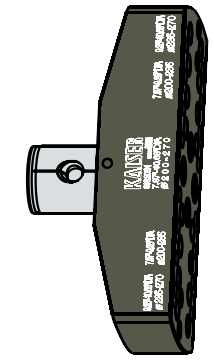
Extension Slides – Ø7.87"-24.41"



C	D	CATALOG NUMBER
7.205	7.87 - 10.63	10.318.222
9.961	10.63 - 13.39	10.318.223
12.717	13.39 - 16.14	10.318.224
15.472	16.14 - 18.90	10.318.225
18.228	19.90 - 21.65	10.318.226
20.984	21.65 - 24.41	10.318.227

Flange CKN6 With Extension Slide – Ø7.87"-13.39"

The flange with extension slide is made of two pieces. In case of limited space in the tool magazine, it is possible to disassemble the CKN-connector and mount it again with 90° orientation.



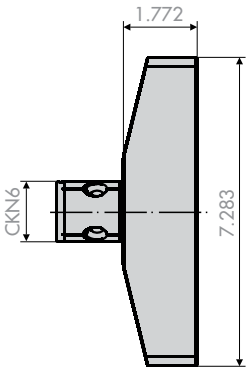


Fig. 3

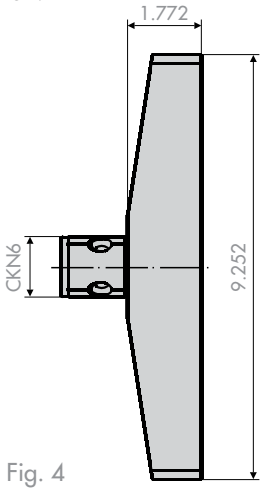
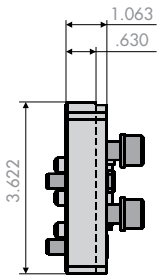


Fig. 4

FIG	D	ADAPTER SIZE	CATALOG NUMBER
3	7.87 - 10.63	CKN6	10.318.205N
4	10.63 - 13.39	CKN6	10.318.206N

Clamping Bases

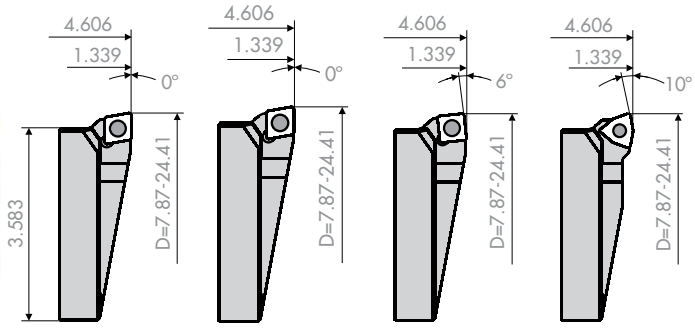


CATALOG NUMBER
10.318.250

* The clamp bases are sold in pairs.

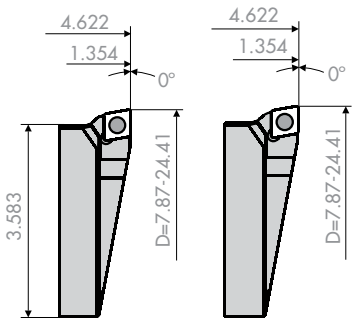
Insert Holders

Standard execution [1]



TYPE	CC..12	CC..16	SC..12	WC..08
CATALOG NUMBER	10.637.940	10.637.941	10.637.942	10.637.943

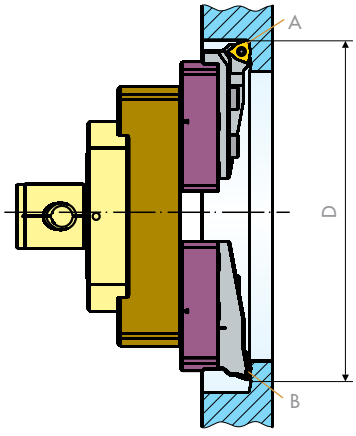
Long execution [2]



TYPE	CC..12	CC..16
CATALOG NUMBER	10.637.951	10.637.953

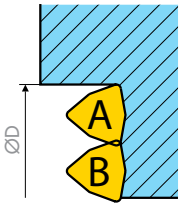
[1] The insert holders are sold in pairs.
[2] These insert holders are used for double offset roughing and are sold individually.

Full Profile Roughing (VPS)



CUTTING DATA

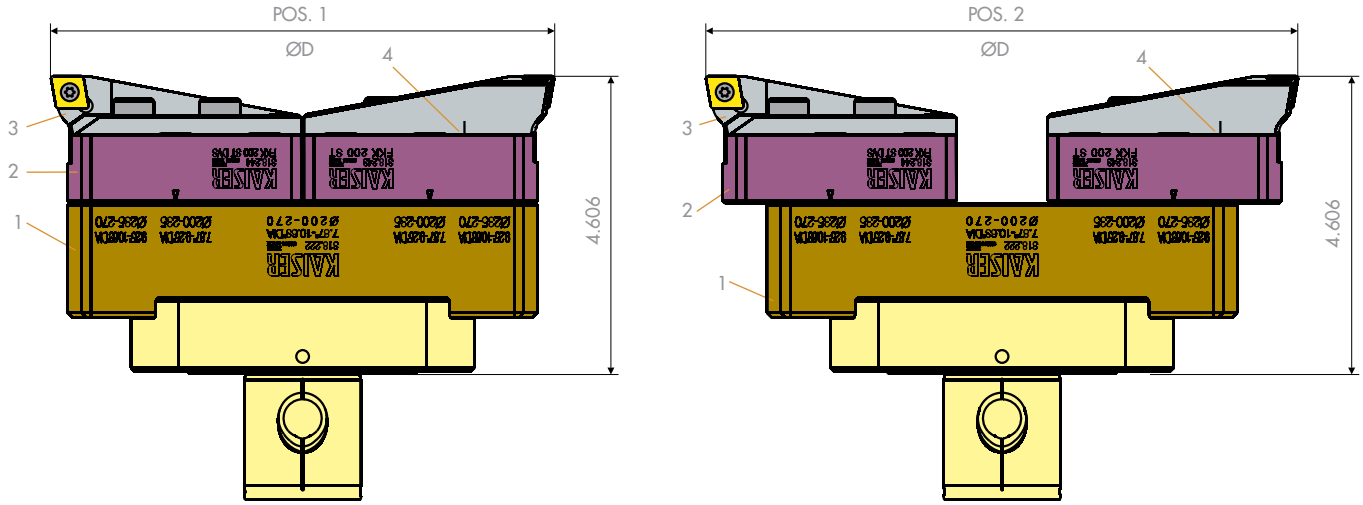
SPEED (SFM)	FEED (IPR)
330 - 600	.004 - .008



STOCK ALLOWANCE	CUTTING EDGE A	CUTTING EDGE B
.945 - 1.17	D	D - .080
1.18 - 1.41		D - .240
1.42 - 1.65		D - .470
1.66 - 1.88		D - .710
1.89 - 2.12		D - .950
2.13 - 2.36		D - 1.180

Full profile roughing permits boring with large stock allowance (up to 2.36" in diameter) in a single operation with relatively low drive power. Set cutting edge A to the final bore diameter, and cutting edge B according to the machining allowance, as listed in the table above.

COMPONENT SELECTION AND ASSEMBLY ADJUSTMENT FOR ROUGHING TOOLS



The table below determines the components such as extensions slide (1), clamp base (2) and insert holders (3) for each diameter range (ØD) and shows in which position (1 or 2) the clamp bases (2) have to be mounted on the extension slide (1).

Further, this table also serves for the coarse diameter setting of the cutting edges by means of the scale on the clamp base and the marking (4) on the insert holder (3). The required scale value is calculated by the difference between bore diameter and correction factor α. The insert holder has to be adjusted to the scale value.

See example below.

RANGE ØD	1 - EXTENSION SLIDE	2 - CLAMPING BASES	3 - INSERT HOLDERS	POSITION	CORRECTION FACTOR α
7.756 - 9.252	10.318.222/10.318.205N	10.318.250	10.637.9xx SEE CHART ON PAGE 6	1	7.874
9.134 - 10.630				2	9.252
10.512 - 12.008	10.318.223/10.318.206N			1	10.630
11.890 - 13.386				2	12.008
13.268 - 14.764	10.318.224			1	13.386
14.646 - 16.142				2	14.764
16.024 - 17.520	10.318.225			1	16.142
17.402 - 18.898				2	17.520
18.780 - 20.276	10.318.226			1	18.898
20.157 - 21.654				2	20.276
21.535 - 23.031	10.318.227			1	21.654
22.913 - 24.409				2	23.031

Example:

Diameter setting according to scale

ØD: 18.020

Extension slide: 10.318.225

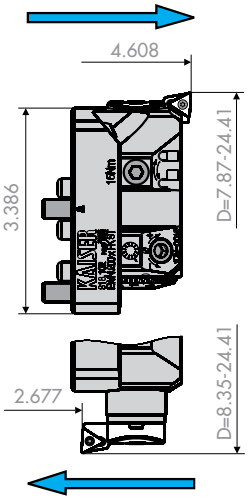
Position: 2

Correction factor α: 17.520

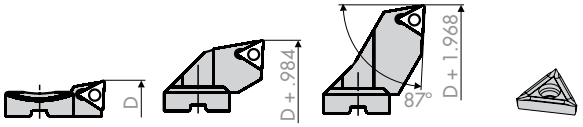
Scale value: ØD - α = 18.020 - 17.520 = .500

Precision Boring Head

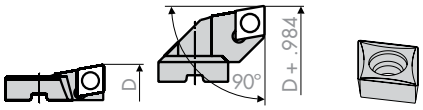
CATALOG NUMBER	10.318.111



Insert Holders



CATALOG NUMBER	10.626.271*	10.626.272	10.626.273	TC..11



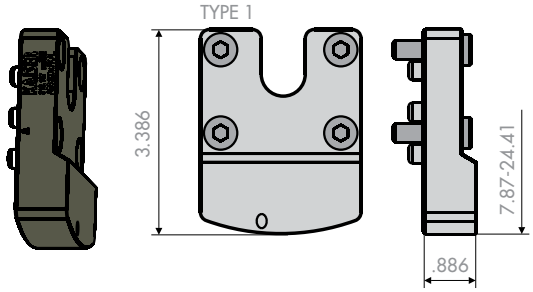
CATALOG NUMBER	10.626.371*	10.626.372	CC..09

* Standard execution, but has reduced range for back boring

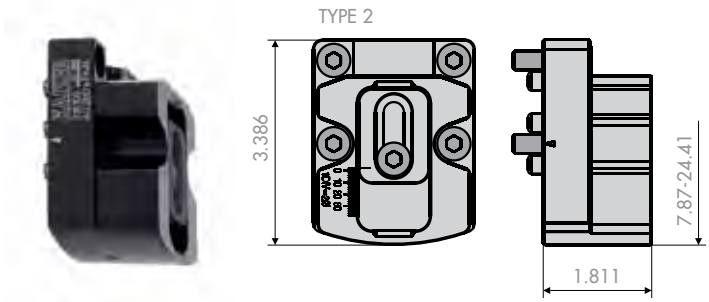
FEATURES:

- Highly accurate and purely radial cutting edge adjustment
- Large scale disc with a parallax-free reading of the adjustment (1Div = .0005"/Ø)
- Adjustable coolant nozzle to provide through-tool coolant to the cutting edge

Counter Weight



CATALOG NUMBER	10.318.107



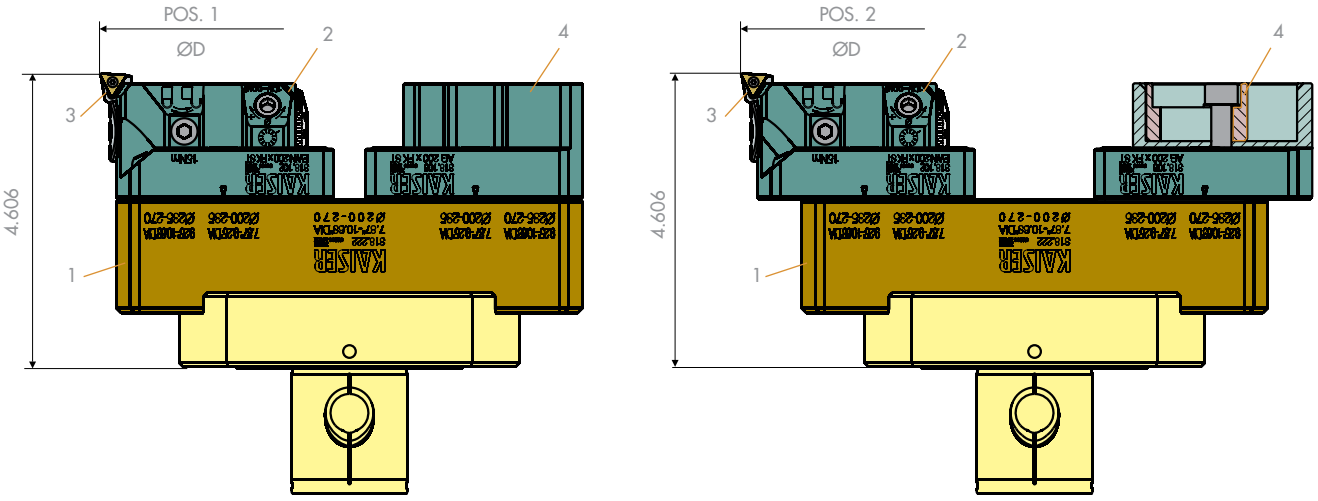
CATALOG NUMBER	10.318.115

There are two different counter weights available.

Type 1 is made of steel and is used for coarse balancing.

Type 2 is made of aluminum and contains a slide with a graduated scale for fine balancing of the tool assembly. The scale value is calculated from the correction factor, shown in the table on page 9.

COMPONENT SELECTION AND ASSEMBLY BALANCING FOR FINISHING TOOLS



The table below determines the components such as extension slide (1), boring head (2), insert holder (3) and counter weight (4) for each diameter range and shows in which position the boring head and counter weight have to be mounted on the extension slide.

Balancing of the tool combination takes place by adjusting the slide on the counter weight according to the scale. The correction factor α is shown in the table.

RANGE ØD	1 - EXTENSION SLIDE	2 - BORING HEAD	3 - INSERT HOLDER	4 - COUNTER WEIGHT	POSITION	CORRECTION FACTOR α
7.795 - 9.331	10.318.222/10.318.205N	10.318.111	10.626.271 (TC..11) OR 10.626.371 (CC..09)	10.318.107 OR 10.318.115	1	7.874
9.173 - 10.709					2	9.252
10.551 - 12.087	10.318.223/10.318.206N				1	10.630
11.929 - 13.465					2	12.008
13.307 - 14.843	10.318.224				1	13.386
14.685 - 16.220					2	14.764
16.063 - 17.598	10.318.225				1	16.142
17.441 - 18.976					2	17.520
18.819 - 20.354	10.318.226				1	18.898
20.197 - 21.732					2	20.276
21.575 - 23.110	10.318.227				1	21.654
22.953 - 24.488					2	23.031

Example:

Balancing

ØD: 10.880

Extension slide: 10.318.223

Position: 1

Counter weight: 10.318.115

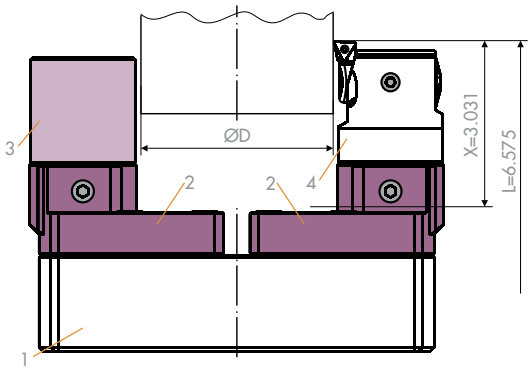
Correction factor α: 10.630

Scale: D - α = 10.880 - 10.630 = .250

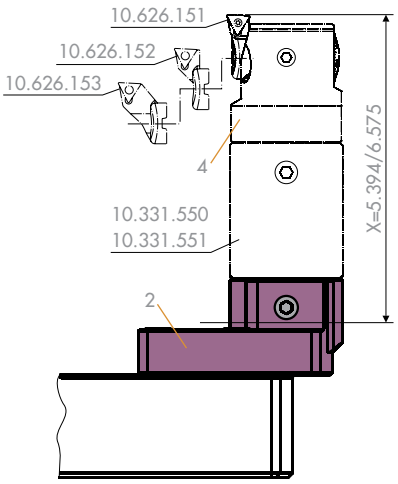
TOOL HOLDER FOR PIN TURNING WITH LARGE DIAMETER BORING TOOLS

The tool holder with KA5 connection can be mounted on any extension slide. For pin turning, it is required to connect the precision boring head EWN53 x KA5 either directly or by means of an extension to the holder. To compensate the imbalance, a second tool holder and a special compensation weight have to be mounted on the opposite side of the extension slide.

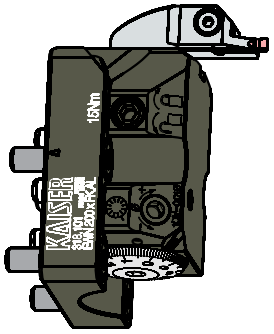
Attention: Counter-clockwise rotation of spindle!

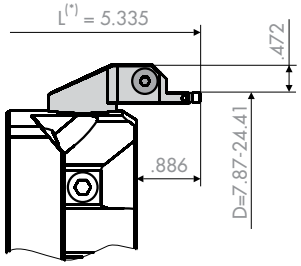


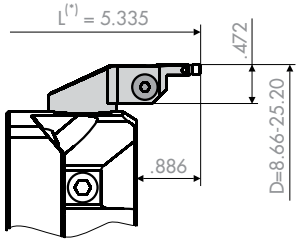
L= Distance to the KA connection.



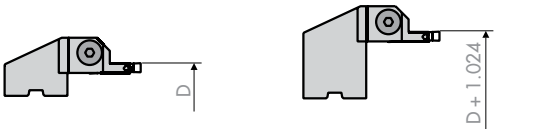
RANGE ØD	1 - EXTENSION SLIDE	2 - TURNING ADAPTER	3 - COUNTER WEIGHT	4 - BORING HEAD	INSERT HOLDER	POSITION
1.929 - 2.598	10.318.222/10.317.205N	10.318.261 (2 REQ'D.)	10.317.285	10.310.511	10.626.153	1
2.441 - 3.110					10.626.152	
2.913 - 3.583					10.626.151	
3.307 - 3.976					10.626.153	2
3.819 - 4.488					10.626.152	
4.291 - 4.961					10.626.151	
4.685 - 5.354	10.318.223/10.317.206N				10.626.153	1
5.197 - 5.866					10.626.152	
5.669 -6.339					10.626.151	
6.063 - 6.732					10.626.153	2
6.575 - 7.244					10.626.152	
7.047 - 7.717					10.626.151	
7.441 - 8.110	10.318.224				10.626.153	1
7.953 - 8.622					10.626.152	
8.425 - 9.094					10.626.151	
8.819 - 9.488					10.626.153	2
9.331 - 10.000					10.626.152	
9.803 - 10.472					10.626.151	
10.197 - 13.228	10.318.225				10.626.153	1
10.709 - 11.378					10.626.152	
11.181 - 11.850					10.626.151	
11.575 - 12.244					10.626.153	2
12.087 - 12.756					10.626.152	
12.559 - 13.228					10.626.151	
12.953 - 13.622	10.318.226				10.626.153	1
13.465 - 14.134					10.626.152	
13.937 - 14.606					10.626.151	
14.331 - 15.000					10.626.153	2
14.843 - 15.512					10.626.152	
15.315 - 15.984					10.626.151	
15.709 - 16.378	10.318.227				10.626.153	1
16.220 - 16.890					10.626.152	
16.693 - 17.362					10.626.151	
17.087 - 17.756					10.626.153	2
17.598 - 18.268					10.626.152	
18.071 - 18.740					10.626.151	



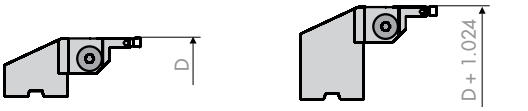




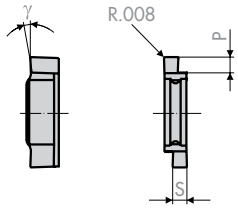
L(*) Tool length to the KA connection



CATALOG NUMBER	10.626.938	10.626.939



CATALOG NUMBER	10.626.948	10.626.949

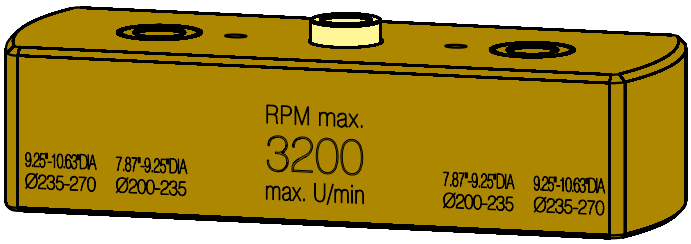


S	P	STEEL		ALUMINUM	
		γ	CATALOG NUMBER	γ	CATALOG NUMBER
0.098	0.106	5°	10.958.425	15°	10.958.475
0.118	0.130		10.958.430		10.958.480
0.130	0.142		10.958.433		10.958.483
0.138	0.150		10.958.435		10.958.485
0.157	0.169		10.958.440		10.958.490

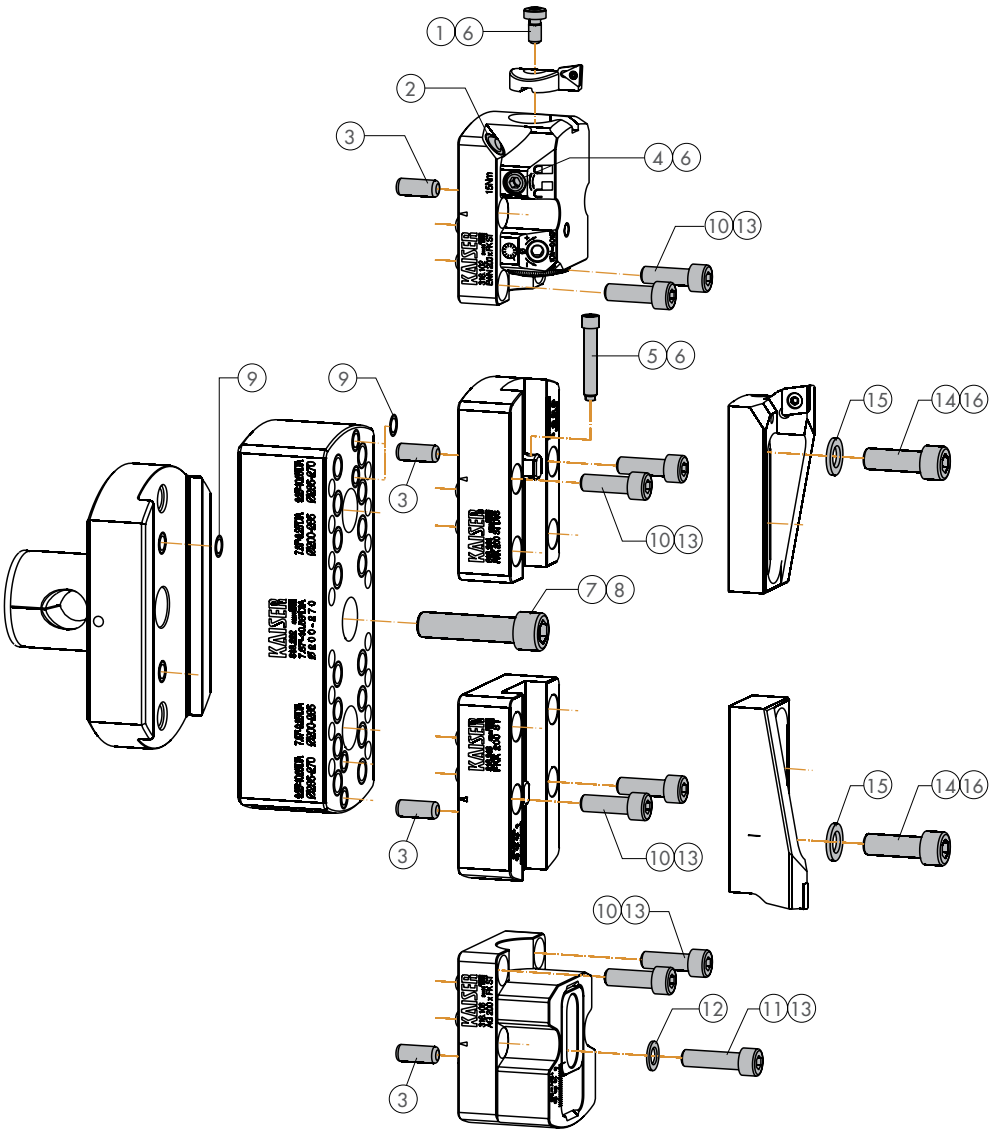
Safety Instruction

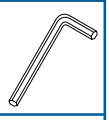
The max. speed allowed for series 318 boring tools is in relation to the boring diameter and the extension slide used.

All extension slides are marked with max. speed allowed (RPM).



BORING RANGE D	EXTENSION SLIDE	MAX RPM
7.87 - 10.63	10.318.222	3200
10.63 - 13.39	10.318.223	2400
13.39 - 16.14	10.318.224	1900
16.14 - 18.90	10.318.225	1600
19.90 - 21.65	10.318.226	1300
21.65 - 24.41	10.318.227	1200



			
1	T (ft-lbs.)	2	3
10.690.140	11	10.692.406	40.691.390
			
4	T (ft-lbs.)	5	6
10.690.553	11	10.317.193	10.690.816
			
7	T (ft-lbs.)	8	9
10.690.121	88	10.690.134	10.692.295
			
10	T (ft-lbs.)		
10.690.140	18		
			
11	12	T (ft-lbs.)	13
10.690.124	10.693.183	18	10.690.817
			
14	15	T (ft-lbs.)	16
10.690.105	10.693.184	30	10.690.807

INSERT SCREWS

	TYPE	CATALOG NUMBER*	T (ft-lbs.)	WRENCH
	CC..12	10.694.150	4	10.694.820
	CC..16	10.694.150		10.694.820
	SC..12	10.694.144	4	10.694.820
	WC..08	10.694.143	2	10.694.815
	TC..11	10.694.122	0.5	10.694.807

* 10 screws and 1 wrench per package

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