

NPA

New Product Announcement

ITS BORE

09-2024

MARCH 2024

METRIC



High Accuracy



Inner Coolant
Feature



New Generation
Tools



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BSFD - Boring Super Fine Digital

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Highlights

BHD MB Boring Heads Will be Replaced with a New Line of Tools Called BSFD or Boring Super Fine Digital. The Boring Heads Feature an MB20 to MB80 Connection. Boring Super Fine Digital Heads from Ø3mm – Ø203.1mm

Main Features

- One display for all fine boring heads diameters.
- 0.001 diameter accuracy.
- Inner coolant feature.

Product features

- Reversible display (LH/RH).
- The display unit is docked with magnetic forces on the tool.
- A direct measurement system with no backlash.
- As there are no batteries, nor an evaluation unit in the tool, it is less prone to water damage.
- Easy to operate.
- Retractable boring bar.
- The unit is intended for digital and analog use and therefore the head and dial can be adjusted.

Applications

- The tools are best suited for high precision boring operations with high accuracy. Suitable for automotive, off-road, aerospace and general engineering applications.
- Can be used as an alternative for reaming operations with high tolerances in cases of interrupted cutting conditions.

Benefits

- Easy to operate operating instructions are included with each head.
- Diameter can be adjusted by use of the digital screen.
- Each head has a highly reliable MB connection, allowing modular assemblies with infinite options.

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Marketing

- Covers a wide range of diameters by use of Boring Super Fine Digital heads.
- The ability to use the MB20 connection (to machine diameters Ø 23.9 - 37.1 mm) with a digital read-out, was unavailable on the BHD system.
- Internal coolant prolongs insert tool life.
- BSFD - The successor of the BHD.

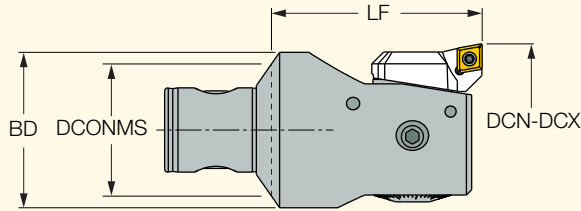
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BSFD MB

Digital Fine Boring Heads with 1 µm Accurate Adjustment and Detachable Display

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5180&mapp=BO&GFSTYP=M&srch=1>

1 µm



Designation	DCONMS	DCN ⁽¹⁾	DCX ⁽²⁾	LF	BD	
BSFD MB20-24-37-A	20.00	23.90	37.10	40.00	22.50	0.13
BSFD MB25-31-47-B	25.00	30.90	47.10	50.00	29.00	0.25
BSFD MB32-40-59-C	32.00	39.90	59.10	63.00	37.00	0.53
BSFD MB40-51-81-D	40.00	50.90	81.10	80.00	47.00	1.08
BSFD MB50-67-105-E	50.00	66.90	105.10	80.00	59.00	1.64
BSFD MB63-87-134-F	63.00	86.90	134.10	88.00	72.00	3.08
BSFD MB80-115-203-G	80.00	115.90	203.10	104.00	94.00	5.00

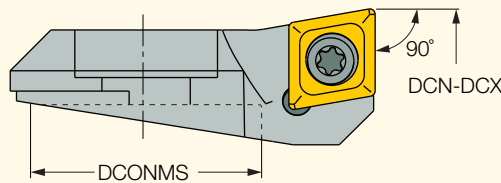
⁽¹⁾ Cutting diameter minimum

⁽²⁾ Cutting diameter maximum

CAR-CC

Side Lock Insert Holders for BSFD MB Boring Heads

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5190&mapp=BO&GFSTYP=M&srch=1>



Designation	DCN ⁽¹⁾	DCX ⁽²⁾	DCN_2 ⁽³⁾	DCX_2 ⁽⁴⁾	DCN_3 ⁽⁵⁾	DCX_3 ⁽⁶⁾	DCONMS	MIID ⁽⁷⁾
CAR-CC0602-1-A	23.90	31.10	-	-	-	-	11.00	CC..0602..
CAR-CC0602-2-A	29.60	37.10	-	-	-	-	11.00	CC..0602..
CAR-CC0602-1-B	30.90	40.10	-	-	-	-	13.00	CC..0602..
CAR-CC0602-2-B	37.90	47.10	-	-	-	-	13.00	CC..0602..
CAR-CC0602-1-C	39.90	51.10	-	-	-	-	17.00	CC..0602..
CAR-CC0602-2-C	47.90	59.10	-	-	-	-	17.00	CC..0602..
CAR-CC0602-1-D	50.90	67.10	-	-	-	-	22.00	CC..0602..
CAR-CC0602-2-D	64.90	81.10	-	-	-	-	22.00	CC..0602..
CAR-CC0602-1-EFG	66.90	87.10	86.90	116.10	115.90	153.10	30.00	CC..0602..
CAR-CC09T3-1-EFG	66.90	87.10	86.90	116.10	115.90	153.10	30.00	CC..09T3..
CAR-CC0602-2-EFG	84.90	105.10	104.90	134.10	133.90	171.10	30.00	CC..0602..
CAR-CC09T3-2-EFG	84.90	105.10	104.90	134.10	133.90	171.10	30.00	CC..09T3..

- A-Suitable for BSFD MB20-24-37-A • B-Suitable for BSFD MB25-31-47-B • C-Suitable for BSFD MB32-40-59-C • D-Suitable for BSFD MB40-51-81-D
- E-Suitable for BSFD MB50-67-105-E • F-Suitable for BSFD MB63-87-134-F • G-Suitable for BSFD MB80-115-203-G

⁽¹⁾ Cutting diameter minimum

⁽²⁾ Cutting diameter maximum

⁽³⁾ for BSFD MB63-87-134-F

⁽⁴⁾ for BSFD MB63-87-134-F

⁽⁵⁾ for BSFD MB80-115-203-G

⁽⁶⁾ for BSFD MB80-115-203-G

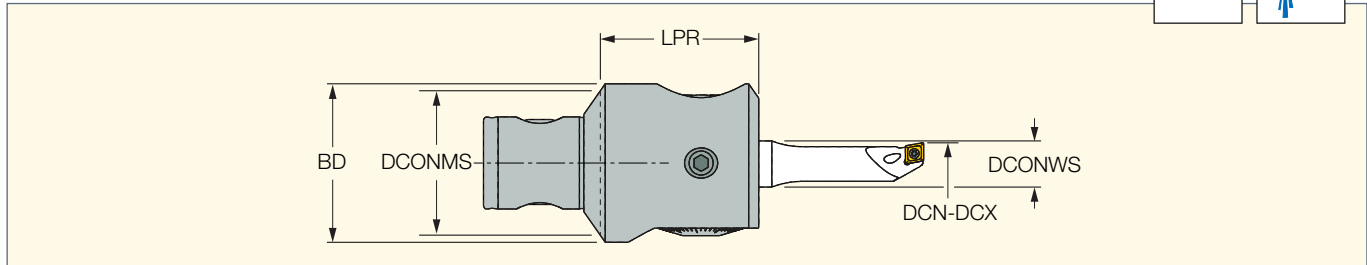
⁽⁷⁾ Master insert identification

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BSFD MB-H

Digital Fine Boring Head with 1 µm Accurate Adjustment and Detachable Display

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5182&mapp=BO&GFSTYP=M&srch=1>



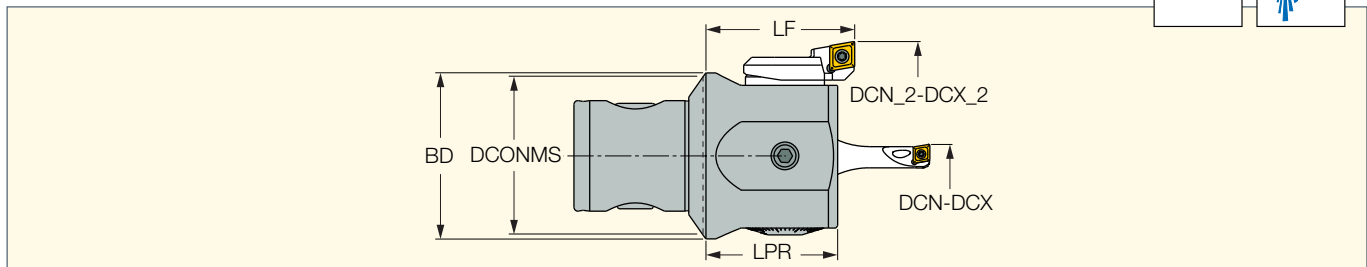
Designation	DCONMS	DCN ⁽¹⁾	DCX ⁽²⁾	LPR	BD	DCONWS	kg
BSFD MB50-03-88-H	50.00	3.00	88.10	55.00	50.15	16.00	1.10

⁽¹⁾ Cutting diameter minimum
⁽²⁾ Cutting diameter maximum

BSFD-V MB-I

Digital Fine Boring Vario Head with 1 µm Accurate Adjustment and Detachable Display

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5181&mapp=BO&GFSTYP=M&srch=1>



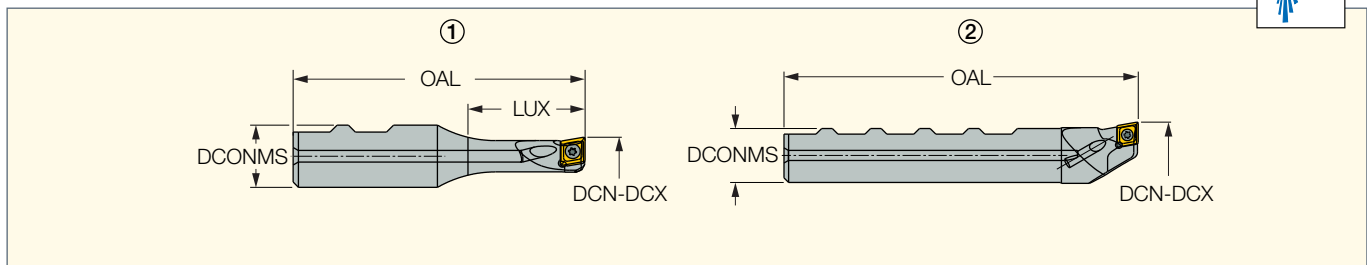
Designation	LF	DCONMS	DCN ⁽¹⁾	DCX ⁽²⁾	DCN_2	DCX_2	LPR	BD	kg
BSFD-V MB63-03-152-I	56.50	63.00	9.75	88.10	87.75	152.00	50.00	63.15	1.64

⁽¹⁾ Cutting diameter minimum
⁽²⁾ Cutting diameter maximum

BAR-CC0602-HI

Indexable Boring Bars for the BSFD-H/I Boring Heads

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5186&mapp=BO&GFSTYP=M&srch=1>



Designation	DCN ⁽¹⁾	DCX ⁽²⁾	LUX	DCONMS	OAL	Fig.	MIID ⁽³⁾	CSP ⁽⁴⁾
BAR-CC0602-1-HI	9.75	15.10	30.00	16.00	75.00	1	CC..0602..	1
BAR-CC0602-2-HI	14.75	20.10	51.00	16.00	90.00	1	CC..0602..	1
BAR-CC0602-3-HI	19.75	25.10	72.00	16.00	105.00	2	CC..0602..	1
BAR-CC0602-4-HI	24.75	30.10	82.00	16.00	115.00	2	CC..0602..	1

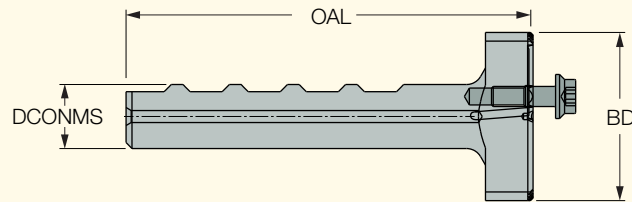
⁽¹⁾ Cutting diameter minimum
⁽²⁾ Cutting diameter maximum
⁽³⁾ Master insert identification
⁽⁴⁾ 0 - Without coolant supply, 1 - With coolant supply


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SH-DX-HI

Extension Shanks for Sliding Insert Holders for BSFD-H/I Boring Heads

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5187&mapp=BO&GFSTYP=M&srch=1>

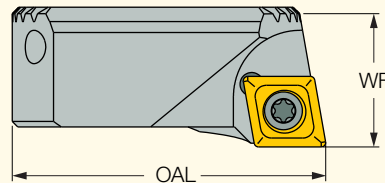


Designation	BD	OAL	DCONMS	
SH-DX-30-48-1-HI	25.00	103.00	16.00	0.18
SH-DX-48-88-2-HI	42.00	101.00	16.00	0.22

BAR-DX-CC0602-HI

Sliding Insert Holders for BSFD-H/I Boring Heads

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5188&mapp=BO&GFSTYP=M&srch=1>



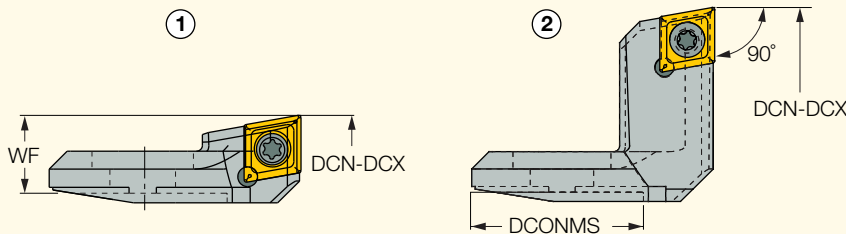
Designation	WF	OAL	DCN ⁽¹⁾	DCX ⁽²⁾	MIID ⁽³⁾
BAR-DX-CC0602-1-HI	12.00	28.20	29.75	48.10	CC..0602..
BAR-DX-CC0602-2-HI	14.00	46.00	47.75	88.10	CC..0602..

- (1) Cutting diameter minimum
- (2) Cutting diameter maximum
- (3) Master insert identification

CAR-V-I/IG

Side Lock Insert Holders for BSFD-V-I Boring Heads

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5191&mapp=BO&GFSTYP=M&srch=1>



Designation	WF	DCN ⁽¹⁾	DCX ⁽²⁾	DCONMS	MIID ⁽³⁾	Fig.
CAR-V-CC09T3-1-I	13.05	87.75	101.10	30.00	CC..09T3..	1
CAR-V-CC09T3-2-I	22.05	105.75	119.00	30.00	CC..09T3..	1
CAR-V-CC09T3-3-IG	32.05	153.90	191.10	30.00	CC..09T3..	2

• I-Suitable for BSFD-V MB63-03-152-I • G-Suitable for BSFD MB80-115-203-G

- (1) Cutting diameter minimum
- (2) Cutting diameter maximum
- (3) Master insert identification

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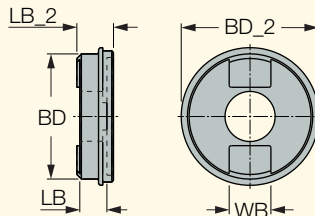
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ADP-V-IG

Adapter Plate for Diameter Range Extension of the CAR-V-I/IG Insert Holders

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5189&mapp=BO&GFSTYP=M&srch=1>



Designation	BD	BD_2	LB	LB_2	WB
ADP-V-114-166-IG	30.00	33.00	6.50	8.80	10.00

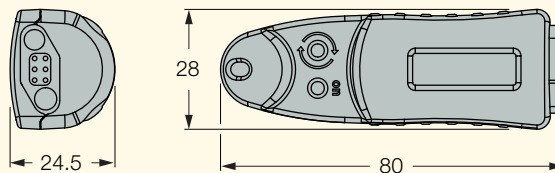
BSFD DISPLAY UNIT

Digital Display Unit for BSFD Boring Heads with 1 μ m Accurate Adjustment

<https://www.iscar.com/eCatalog/Family.aspx?fnum=5185&mapp=BO&GFSTYP=M&srch=1>



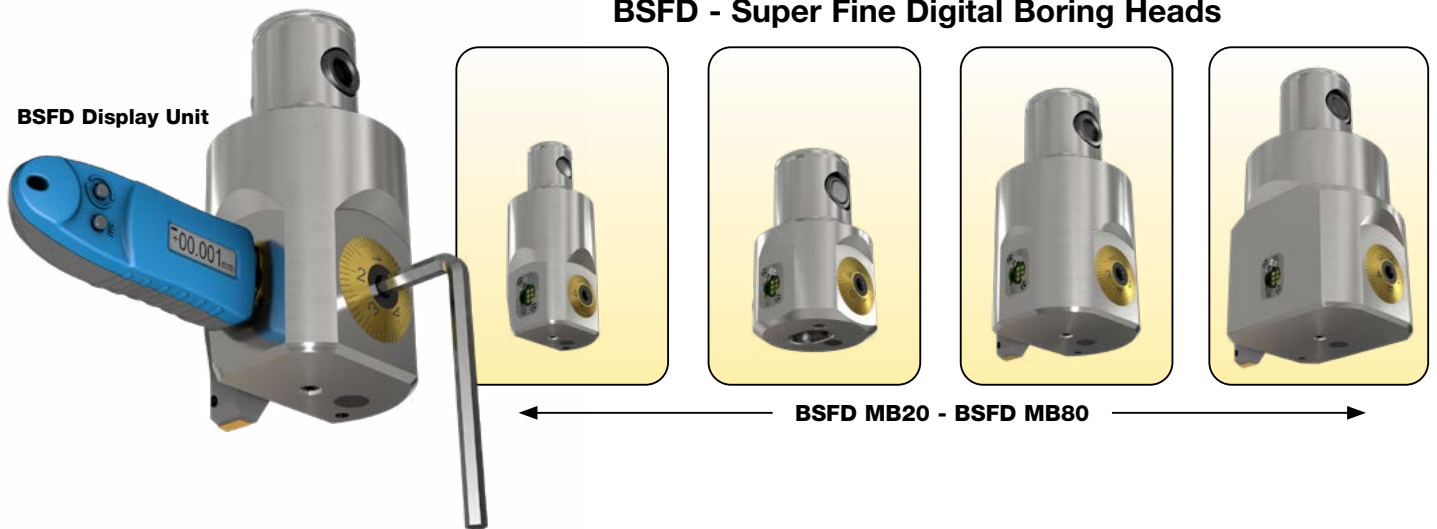
1 μ m



Designation	Accuracy
BSFD DISPLAY UNIT	0.001

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BSFD - Super Fine Digital Boring Heads



BSFD - Operating Instructions

Function and maintenance

Battery status

Measurements unit

On + Reset

3X Torx T6

Press 1 sec. to flip display view | **Press 3 sec. change metric/imperial**

The diagram shows the blue BSFD Display Unit with a digital display showing '+00.001mm'. It highlights the 'On + Reset' button and the 'Measurements unit' button. A separate view shows the back of the unit with a green battery compartment labeled '+ Type AAA -' and a '3X Torx T6' screw.

1. Connect
2. Switch on
- 2.1 Unlock
2.2 Set
2.3 Lock
3. 1. Disconnect
2. Auto power off 15 sec.

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MATERIAL GROUPS

Cutting speed $V = V_0 \times K_s$

where V_0 - basic cutting speed (Table 1)

K_s - stability factor (Table 2)

Table 1 - Basic cutting speed V_0 and feed f

ISO	Material	Condition	Tensile Strength [N/mm ²]	Hardness HB	Material Group No. ⁽¹⁾	Feed f , mm/rev		
						Insert Radius		
						R=0.2	R=0.4 *	
P	non-alloy steel and cast steel, free cutting steel	<0.25% C	annealed	420	125	1	0.05 - 0.08	0.08 - 0.10
		≥0.25% C	annealed	650	190	2		
		<0.55% C	quenched and tempered	850	250	3		
			annealed	750	220	4		
		≥0.55% C	quenched and tempered	1000	300	5		
	low alloy and cast steel (less than 5% of alloying elements)	annealed	600	200	6			
		quenched and tempered		930	275	7		
				1000	300	8		
			1200	350	9			
	high alloyed steel, cast steel and tool steel	annealed	680	200	10			
		quenched and tempered	1100	325	11			
	stainless steel and cast steel	ferritic / martensitic	680	200	12			
		martensitic	820	240	13			
M	stainless steel and cast steel	austenitic, duplex	600	180	14	0.05 - 0.08	0.08 - 0.10	
K	gray cast iron (GG)	ferritic / pearlitic		180	15	0.05 - 0.08	0.08 - 0.10	
		pearlitic / martensitic		260	16			
	nodular cast iron (GGG)	ferritic		160	17			
		pearlitic		250	18			
	malleable cast iron	ferritic		130	19			
		pearlitic		230	20			
N	aluminum-wrought alloys	not hardenable		60	21	0.05 - 0.08	0.08 - 0.10	
		hardenable		100	22			
	aluminum-cast alloys	≤12% Si	not hardenable		75			23
			hardenable		90			24
		>12% Si	high temperature		130			25
	copper alloys	>1% Pb	free cutting		110			26
			brass		90			27
			electrolytic copper		100			28
non metallic		duroplastics, fiber plastics		70 Shore D	29			
		hard rubber		55 Shore D	30			
S	high temperature alloys	Fe based	annealed		200	31	0.05 - 0.08	0.08 - 0.10
			hardened		280	32		
		Ni or Co based	annealed		250	33		
			hardened		350	34		
	titanium alloys		cast		320	35		
			pure	Rm = 400 ⁽²⁾	190	36		
			alpha+beta alloys, hardened	Rm = 1050	310	37		
H	hardened steel	hardened		55 HRC	38	0.04 - 0.065	0.06 - 0.08	
		hardened		60 HRC	39			
	chilled cast iron	cast		400	40			
	cast iron	hardened		55 HRC	41			

- steel
- stainless steel
- cast iron
- non-ferrous metals
- superalloys and titanium
- hard materials

⁽¹⁾ In accordance with VDI3323 standard

⁽²⁾ Rm - ultimate tensile strength, MPa

* Not recommended for work in poor stability conditions

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Basic cutting speed Vo , m/min

IC20N	IC30N IC8250 IC9250 IC520N	IC54	IC20	IB55	IC8150 IC9150	IC6015	IC806	IC6025	ID5	IC1520	IC804	IC830	IC807	IC907	IC1008	
175 - 280	170 - 270	120 - 190			175 - 280							140 - 210	170 - 270	170 - 270	120 - 190	
170 - 260	160 - 250	115 - 175			170 - 260							125 - 200	160 - 250	160 - 250	115 - 175	
160 - 250	155 - 240	110 - 170			160 - 250							120 - 185	155 - 240	155 - 240	110 - 170	
150 - 240	140 - 230	100 - 165			150 - 240							110 - 180	140 - 230	140 - 230	100 - 165	
150 - 235	140 - 225	100 - 160			150 - 235							115 - 175	140 - 225	140 - 225	100 - 160	
140 - 220	135 - 210	95 - 150			140 - 220							105 - 160	135 - 210	135 - 210	95 - 150	
135 - 210	130 - 200	90 - 140			135 - 210							100 - 150	130 - 200	130 - 200	90 - 140	
135 - 210	130 - 200	90 - 140			135 - 210							100 - 150	130 - 200	130 - 200	90 - 140	
120 - 190	115 - 180	80 - 130			120 - 190							90 - 140	115 - 180	115 - 180	80 - 130	
115 - 180	110 - 170	75 - 120			115 - 180							80 - 130	110 - 170	110 - 170	75 - 120	
105 - 160	100 - 155	70 - 110			105 - 160							105 - 170	100 - 155	100 - 155	70 - 110	
135 - 215	130 - 205	90 - 145			135 - 215							145 - 220	130 - 205	130 - 205	90 - 145	
120 - 200	115 - 190	80 - 135			120 - 200							90 - 140	115 - 190	115 - 190	80 - 135	
110 - 180	100 - 140	70 - 100	90 - 125			100 - 140		75 - 105				70 - 100	110 - 180	100 - 140	70 - 100	
			110 - 155	125 - 175	125 - 175								100 - 140	100 - 140	90 - 125	
			100 - 140	110 - 155	110 - 155								90 - 130	90 - 130	80 - 120	
			90 - 135	100 - 150	100 - 150								80 - 120	80 - 120	70 - 105	
			80 - 110	90 - 125	90 - 125								70 - 100	70 - 100	60 - 95	
			100 - 140	110 - 155	110 - 155								90 - 130	90 - 130	80 - 120	
			90 - 135	100 - 150	100 - 150								80 - 120	80 - 120	70 - 120	
			250 - 350						325 - 455	300 - 420				280 - 380	280 - 380	
			215 - 305						270 - 400	250 - 365				240 - 330	240 - 330	
			250 - 350						325 - 455	300 - 420				280 - 380	280 - 380	
			225 - 305						290 - 400	275 - 365				260 - 340	260 - 340	
			125 - 175						160 - 225	150 - 205				155 - 205	155 - 205	
			140 - 200						180 - 260	170 - 240				170 - 230	170 - 230	
			140 - 200						180 - 260	170 - 240				170 - 230	170 - 230	
			100 - 140						130 - 180	120 - 170				125 - 165	125 - 165	
			90 - 170						120 - 220	110 - 205				115 - 190	115 - 190	
			125 - 275						150 - 360	150 - 355				140 - 340	140 - 340	
			60 - 70									60 - 70	75 - 85	60 - 70	60 - 70	75 - 85
			50 - 60									50 - 60	55 - 75	50 - 60	50 - 60	55 - 75
			35 - 40									35 - 40	45 - 50	35 - 40	35 - 40	45 - 50
			25 - 30									25 - 30	30 - 35	25 - 30	25 - 30	30 - 35
			30 - 35									30 - 35	35 - 40	30 - 35	30 - 35	35 - 40
			65 - 75									65 - 75	80 - 90	65 - 75	65 - 75	80 - 90
			45 - 50									45 - 50	55 - 60	45 - 50	45 - 50	55 - 60
			80 - 90	90 - 180										80 - 90	80 - 90	70 - 160
			65 - 75	70 - 150										65 - 75	65 - 75	55 - 125
			120 - 135	130 - 270										120 - 135	120 - 135	90 - 110
			80 - 90	90 - 180										80 - 90	80 - 90	70 - 160

Table 2 - Stability factor Ks

Stability	High	Normal	Poor
Ks	1.2	1	0.4