

Solutions for the **tool and die industry**


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CERATIZIT is a high-tech engineering group in tooling and hard materials technology.

Tooling the Future.

www.ceratizit.com



Sarah-Jane Breitenreiter,
Customer Service Centre

**Together towards
profitable growth:
we can give you the
decisive competitive
advantage.**

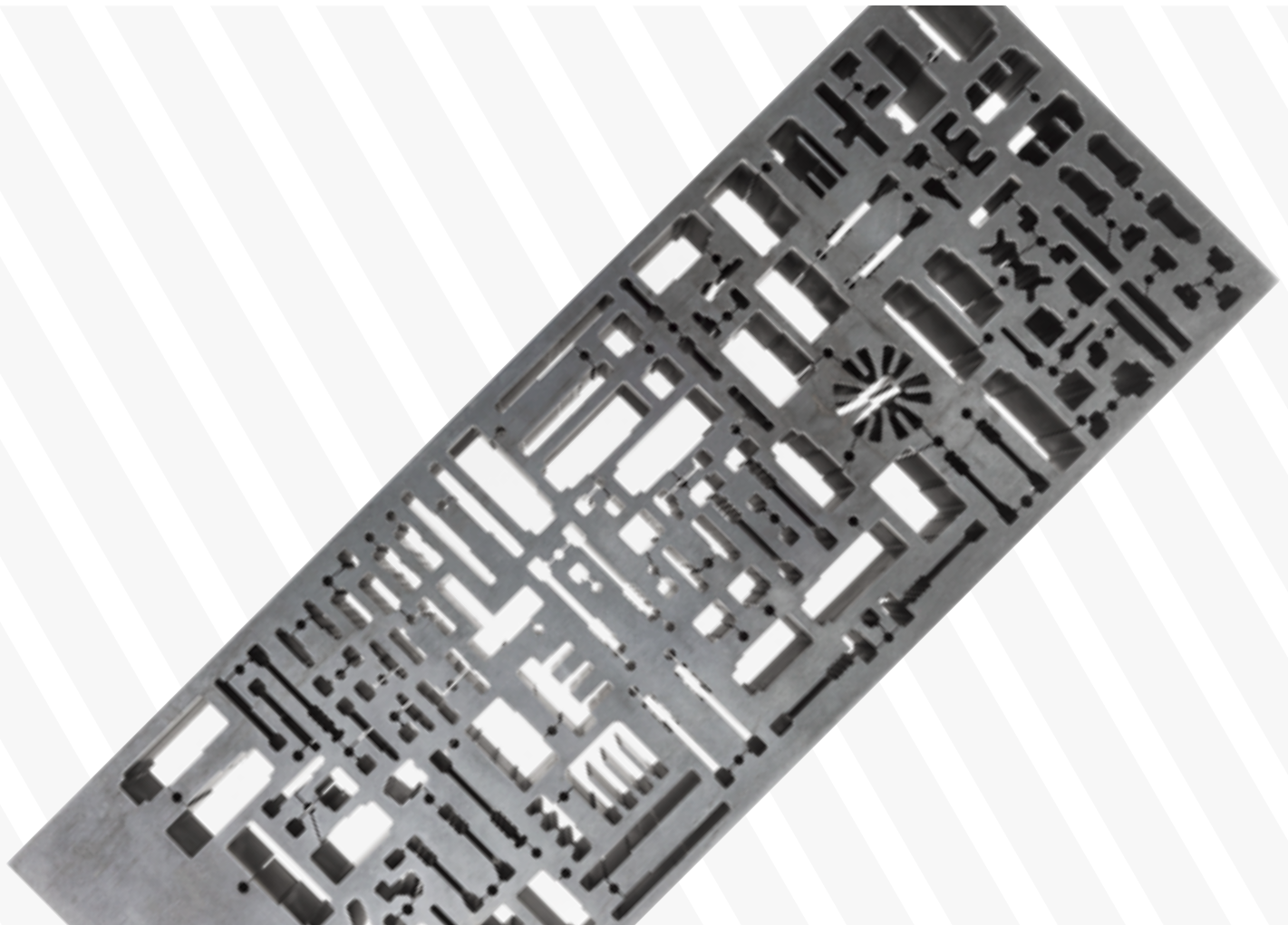
Economic efficiency, precision, process reliability.

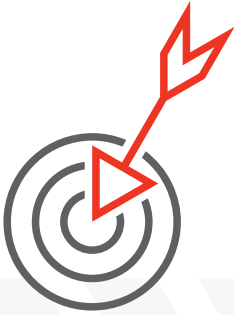
Solutions from Hard Material Solutions by CERATIZIT fulfil all expectations in relation to tools and active parts in particular. They are **sophisticated** and **powerful** thanks to high-quality carbide grades.

The prerequisite for this is a **permanently homogeneous and consistent carbide structure** which guarantees **long tool life and process stability**. Specifically developed for tool and die construction, our CF carbide

grades are extremely resistant to both wear and corrosion and are ideally suited to a wide range of applications.

In order to achieve the best possible result, in addition to the suitable carbide grade for your application, we also provide you with an outstanding **service package**: advice concerning grade characteristics and selection, optimisation of machining processes and customer-specific seminars.





Advantages & benefits

Advantages

Economic efficiency

Targeted recommendation of the most suitable grade	→	tool life optimisation, increase in productivity
Widest range of corrosion-resistant grades available on the market	→	individual grade selection for the largest application range in the fields of stamping, bending, blanking and forming operations.
Consistent quality	→	high productivity and repeatability
Blocks for wire erosion with ground thickness available from stock	→	time saving: the ground products can be used immediately on your eroding machine
Increased stroke rates	→	great quantities in short time
High rigidity, reduced abrasive wear	→	improved form accuracy of the active parts compared to steel and PM steel
Higher output quantity compared to active parts in steel	→	cost and time saving particularly for high quantities

Technical expertise

Profound knowledge of applications	→	optimisation of processes and tool life
Research in study groups with scientific institutes and partners in the industry	→	access to the latest developments and trends
Metallurgical analyses in the CERATIZIT Group	→	additional technical support in the field of application optimisation and development

Safety and reliability

Homogeneous structure and minimised porosity, also for larger dimensions	→	repeatability and high-quality and precise working results
CF+ grades: high KIC values while maintaining the same hardness	→	excellent cutting edge stability
High product availability, orders 24/7 via the E-Techstore	→	quick and flexible delivery, saving the customer storage costs

Our solutions for the tool and die industry

Whether stamping, bending or blanking, metal forming, powder pressing or fine cutting – with our active parts made of carbide you can achieve high output rates and quantities, enabling you to turn out mass-produced parts economically.

Our products are available in various carbide grades and versions

Carbide blocks for wire erosion, as sintered

- ▲ in special execution
- ▲ with grinding allowance in all dimensions
- ▲ thickness ground to clean up + 0.4/+ 0.6 mm – ready to use, precisely machined and without surcharge

Rectangular strips for punching dies

- ▲ as sintered, with positive sintering tolerance

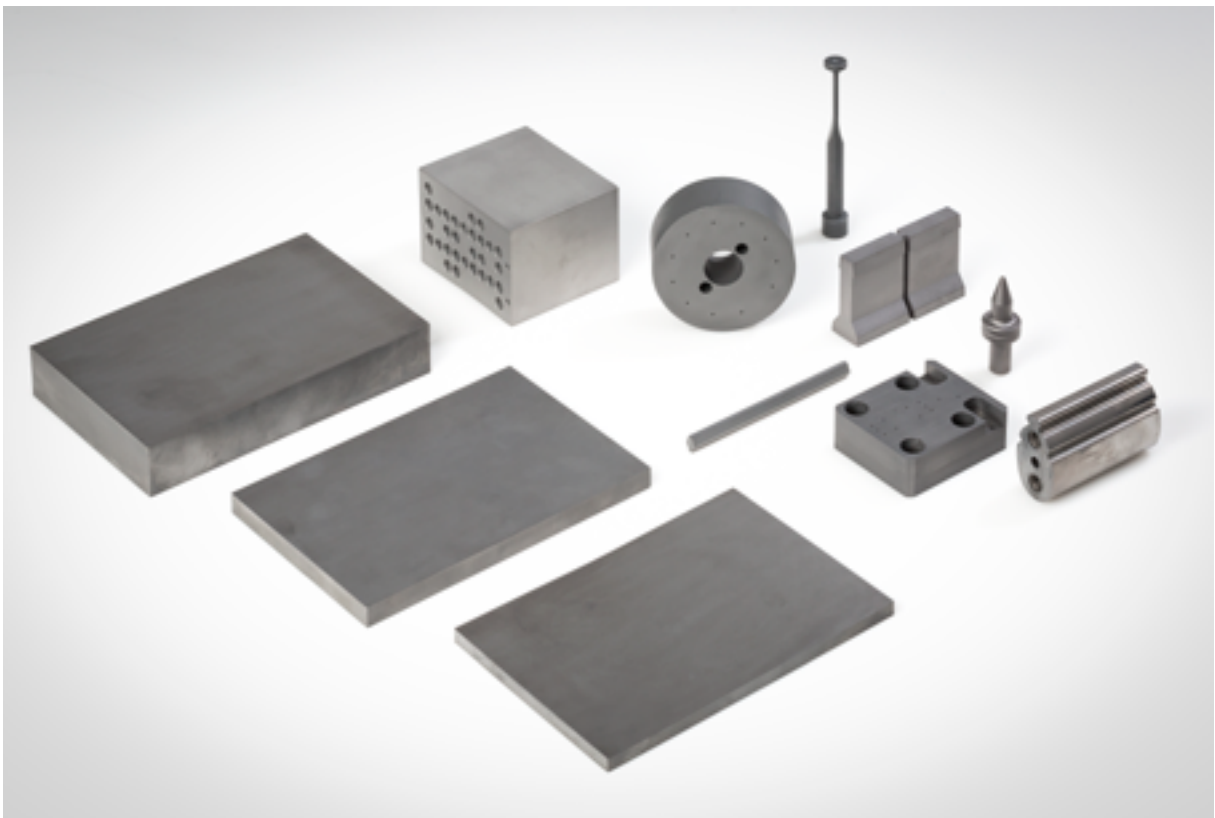
Bushes for guides and dies

- ▲ outer dimensions with grinding allowance, inner diameter with positive sintering tolerances

Rods for punching dies

- ▲ as sintered, length 330 mm
- ▲ diameter ground to h6, length: 330 mm

Preforms according to customer drawings



Application matrix for the tool and die industry

The following table offers a good basis for choosing the right grade.

the tools should be taken into account in order to select the optimal grade.

Further influencing factors such as the composition of the strip material, cutting gap, lubrication, geometry of the active parts and the structure of

Requirements regarding the surface quality*

Strip thickness	Tensile strength (N/mm ²)				
	<500	500–900	900–1400	1400–2000	>2000
< 0.2	CF-S12Z CF-S18Z CF-H25S+	CF-S12Z CF-S18Z CF-H25S+	CF-S18Z CF-H25S+	CF-S18Z CF-H40S+	CF-F35Z CF-20HP
0.2–0.5	CF-S12Z CF-S18Z CF-H25S+	CF-S12Z CF-S18Z CF-H25S+	CF-S18Z CF-H25S+	CF-H40S+ CF-F35Z	CF-F35Z CF-20HP
0.5–0.8	CF-S18Z CF-H25S+	CF-S18Z CF-H40S+	CF-S18Z CF-H40S+	CF-F35Z CF-20HP	°
0.8–1.2	CF-S18Z CF-H40S+	CF-H40S+	CF-H40S+	CF-F35Z CF-20HP	°
1.2–1.5	CF-H40S+	CF-H40S+	CF-H40S+ CF-F35Z	CF-F35Z CF-20HP	°
1.5–2	CF-H40S+	CF-H40S+ CF-F35Z CF-20HP	CF-F35Z CF-20HP	°	°
2–3	CF-H40S+	CF-H40S+ CF-F35Z CF-20HP	CF-F35Z CF-20HP	°	°
3–6	CF-H40S+ CF-F35Z CF-20HP	CF-F35Z CF-20HP	°	°	°
6–10	CF-F35Z CF-20HP	°	°	°	-
> 10	°	°	°	-	-

° Insufficient data. Test can be carried out upon request.

* Minimal damage due to machining operation (formation of thermal cracks, white zone, ...) and low roughness values. Adhesion due to strip material requires the best possible surface quality.

Optimisation of applications

Tool improvement is the basis for maximum economy in the application process.

CERATIZIT offers a **systematic approach for the optimisation of the overall system.**

This includes both an application-specific grade selection and the possibility of optimising the

machining strategy of the production process in order to ensure sustainable development for other applications.



CF+ grades: the 'PLUS' in terms of performance

Our customers have been working for decades with our proven and fully fledged corrosion-resistant CF (corrosion-free) carbide grades, which were specifically developed for the tool and die industry.

To ensure that this will continue in the future, we have provided our latest developments with a PLUS in terms of performance.

You can benefit right away from even better product characteristics:

- ▲ **High process reliability** with optimal cutting edge stability thanks to higher KIC values while maintaining the same hardness
- ▲ Strong **corrosion protection** and reduced speed of corrosion
- ▲ **Stable processes** including delicate active parts thanks to enhanced transverse rupture strength and improved tensile strength.

More safety, reliability and efficiency - at the same price:

	NEW! CF+ grades	Former product
	CF-H25S+	CF-H25S
Transverse rupture strength (MPa)	3.000	2.600
Fracture toughness (MPa*m ^{1/2})	10,2	10,1
	CF-H40S+	CF-H40S
Transverse rupture strength (MPa)	3.200	3.000
Fracture toughness (MPa*m ^{1/2})	12,5	12

The CF grade family – corrosion-resistant carbide grades, specifically developed for tool and die construction

1. CF-H25S+

Fine/medium grade with high hardness and fracture toughness for high requirements in terms of abrasive wear.

	CF grade	replaces old grades	
	CF-H25S+	H20S / CTF12	H30S / CTF18
Binder content	8,5 %	6,0 %	9,0 %
Grain size	fine-medium	fine	fine
Corrosion resistance	YES	NO	NO
Hardness [HV10]	1660	1640	1400
Transverse rupture strength [MPa]	3000	2200	2800
Fracture toughness [MPa*m ^{1/2}]	10,2	9,9	10,9

Application

- ▲ When maximum wear resistance in general and of the skin surface in particular is required

Other

- ▲ Replaces fine and medium grades such as H30S/H40S/ CF-H40S+ when there are issues with excessive wear
- ▲ Alternative to CF-H40S+ in case of abrasion

2. CF-H40S+

Well-balanced corrosion-resistant fine-medium grade

	CF grade	replaces old grades	
	CF-H40S+	H30S / CTF18	H40S / CTF24
Binder content	12,0 %	6,0 %	9,0 %
Grain size	fine-medium	fine	fine
Corrosion resistance	YES	NO	NO
Hardness [HV10]	1400	1400	1330
Transverse rupture strength [MPa]	3200	2800	3000
Fracture toughness [MPa*m ^{1/2}]	12,5	10,9	12,0

Application

- ▲ Ideal compromise between wear resistance and KIC value (fracture toughness / edge stability)
- ▲ For universal applications: stamping, bending, blanking and forming operations

Other

- ▲ Replaces standard fine-medium grades such as H30S/H40S/H50S when there are problems with wear and corrosion
- ▲ Replaces standard submicron grades such as TSM33/CTS 20L when there are problems with edge chipping or corrosion
- ▲ Alternative to CF-H25S+ in case of primary edge chipping

3. CF-S12Z

Corrosion-resistant submicron grade with high hardness

	CF grade	replaces old grades	
	CF-S12Z	TSM10 / CTS12L	TSM20 / CTS15L
Binder content	6,0 %	6,0 %	7,5 %
Grain size	submicron	submicron	submicron
Corrosion resistance	YES	NO	NO
Hardness [HV10]	1860	1870	1790
Transverse rupture strength [MPa]	3600	3500	3600
Fracture toughness [MPa*m ^{1/2}]	9,0	8,2	8,6

Application

- ▲ For thin strips and strips with low shear and tensile strength
- ▲ For materials with a high tendency to adhesion
- ▲ For soft materials, such as copper alloys, e.g. CuSn4F54, CuZn37, CuNi9Sn2

Other

- ▲ Replaces submicron grades TSM10/CTS12L and TSM20/CTS15L when there are corrosion issues
- ▲ An increase in economic efficiency is possible when CF-H25S+, CF-S18Z or similar grades are subject to abrasion wear only (provided there is no edge chipping)
- ▲ Further reduction of adhesion when applying the current CF-H25S+, CF-S18Z or similar grades (provided there is no edge chipping)

4. CF-S18Z

Corrosion-resistant submicron grade with increased fracture toughness.

	CF grade	replaces old grades	
	CF-S18Z	MG18 / CTS20L	TSM33
Binder content	9,0 %	10 %	10 %
Grain size	submicron	submicron	submicron
Corrosion resistance	YES	NO	NO
Hardness [HV10]	1630	1680	1610
Transverse rupture strength [MPa]	3500	3700	3700
Fracture toughness [MPa*m ^{1/2}]	11,0	9,4	9,4

Application

- ▲ Particularly for thin-walled punches and dies with delicate shapes which require high transverse rupture strength
- ▲ When high wear resistance in general and high wear resistance of the skin surface are required
- ▲ For materials with a high tendency to adhesion
- ▲ For soft materials, such as copper alloys, e.g. CuSn4F54, CuZn37, CuNi9Sn2

Other

- ▲ Replaces submicron grades such as MG18/ TSM33 (CTS 20L) when there are corrosion issues or edge chipping
- ▲ Replaces submicron grades such as H30S/ H40S when there is insufficient transverse rupture strength and wear
- ▲ Alternative to CF-H25S+ & CF-H40S+ in case of insufficient transverse rupture strength

5. CF-F35Z

Corrosion-resistant fine-medium grade with high fracture toughness

	CF grade	replaces old grades	
	CF-F35Z	H50S / CTF30	H60S / CTF40
Binder content	17,5 %	15,0 %	20,0 %
Grain size	fine-medium	fine	fine
Corrosion resistance	YES	NO	NO
Hardness [HV10]	1200	1240	1070
Transverse rupture strength [MPa]	3300	3100	3400
Fracture toughness [MPa*m ^{1/2}]	15,6	13,1	14,2

Application

- ▲ Stamping of thick sheet metal
- ▲ Stamping of high-tensile strip material
- ▲ Bending & forming applications

Other

- ▲ Replaces HSS/PM steels in wear or corrosion situations
- ▲ Replaces fine-medium grades such as H40S/ H50S/H60S

- ▲ with low K_{IC} values (fracture toughness, edge stability) when there are problems with edge chipping
- ▲ Replaces H50S & H60S as a variant with protection against corrosion
- ▲ Alternative to CF-20HP in case of breakage issues or edge chipping
- ▲ Shows very good results in the milling process regarding surface and economy

6. CF-20HP

Corrosion-resistant medium-coarse grade with high hardness

	CF grade	replaces old grades	
	CF-20HP	B30S / CTC20	B40S / CTC25
Binder content	10,0 %	10,0 %	12,5 %
Grain size	medium-coarse	coarse	coarse
Corrosion resistance	YES	NO	NO
Hardness [HV10]	1300	1170	1080
Transverse rupture strength [MPa]	2800	3000	3050
Fracture toughness [MPa*m ^{1/2}]	15,1	13,1	16,3

Application

- ▲ Characterised by high hardness and a maximum K_{IC} value (fracture toughness, edge stability)
- ▲ Hardness of a fine grain grade and K_{IC} value of a coarse grain grade
- ▲ Stamping of thick sheet metal
- ▲ Bending and forming applications

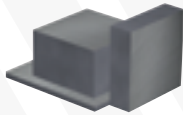
Other

- ▲ Replaces HSS/PM steels and carbide coarse grains in case of wear or corrosion issues
- ▲ Replaces fine-medium grain grades such as H40S/H50S when there are problems with edge chipping
- ▲ Alternative to CF-F35Z when the binder content is too high for the application (e.g. adhesion)

Programme & Availability

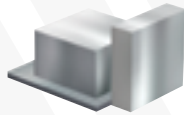
CTEB00

Carbide blocks for wire erosion,
as sintered



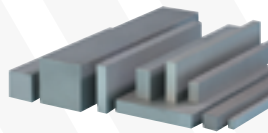
CTEB20

Ground blocks for wire erosion



CTSS

Rectangular strips for punching dies,
as sintered



CTPP

Rods for powder
compaction tools,
as sintered



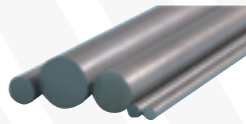
CTSB

Bushes for guides and dies,
as sintered



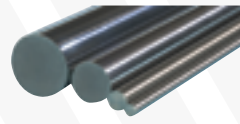
CTRR

Rods for punching dies, as sintered



CTRG

Ø Ground to h6 rods for punching dies



Grades available in stock and via E-Techstore within 24 hours

Product code	CF-S12Z	CF-S18Z	CF-H25S+	CF-H40S+	CF-F35Z	CF-20HP
CTEB00	▲	▲	▲	▲	▲	▲
CTEB20	●	●	●	●	●	●
CTSS	▲	●	▲	●	▲	▲
CTSB	▲	●	▲	●	▲	▲
CTPP	▲	▲	▲	●	▲	▲
CTRR	▲	●	▲	●	▲	▲
CTRG	▲	●	▲	●	▲	▲

● = stock item ▲ = upon request

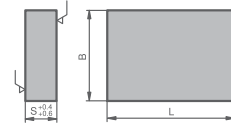
The following grades are available as special versions

Type	CF-S12Z	CF-S18Z	CF-H25S+	CF-H40S+	CF-F35Z	CF-20HP
Special blocks	●	●	●	●	●	●
Special blocks with start bore / steel plug / threaded hole	●	●	●	●	●	●
Preforms according to customer drawing	●	●	●	●	●	●
Preforms to customer drawing with steel plug/thread	●	●	●	●	●	●

● = standard production

Carbide blocks for wire erosion, as sintered

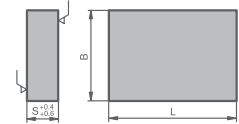
with grinding allowance on all dimensions,

thickness ground to clean up + 0.4/+ 0.6 mm, **CF-S12Z**

Type, description	Material	L mm	B mm	S mm
CTEB20-100,0x082,5x76,5 CF-S12Z	11965713	100	82,5	76,5
CTEB20-150,0x072,0x062,0 CF-S12Z	11965715	150	72	62
CTEB20-150,0x100,0x002,0 CF-S12Z	11965684	150	100	2
CTEB20-150,0x100,0x003,0 CF-S12Z	11965685	150	100	3
CTEB20-150,0x100,0x004,0 CF-S12Z	11965687	150	100	4
CTEB20-150,0x100,0x005,0 CF-S12Z	11965688	150	100	5
CTEB20-150,0x100,0x006,0 CF-S12Z	11965689	150	100	6
CTEB20-150,0x100,0x007,0 CF-S12Z	11965690	150	100	7
CTEB20-150,0x100,0x008,0 CF-S12Z	11965691	150	100	8
CTEB20-150,0x100,0x009,0 CF-S12Z	11965693	150	100	9
CTEB20-150,0x100,0x010,0 CF-S12Z	11965695	150	100	10
CTEB20-150,0x100,0x012,0 CF-S12Z	11965697	150	100	12
CTEB20-150,0x100,0x015,0 CF-S12Z	11965699	150	100	15
CTEB20-150,0x100,0x016,0 CF-S12Z	11965702	150	100	16
CTEB20-150,0x100,0x018,0 CF-S12Z	11965703	150	100	18
CTEB20-150,0x100,0x020,0 CF-S12Z	11965704	150	100	20
CTEB20-150,0x100,0x023,0 CF-S12Z	11965705	150	100	23
CTEB20-150,0x100,0x025,0 CF-S12Z	11965706	150	100	25
CTEB20-150,0x100,0x028,0 CF-S12Z	11965708	150	100	28
CTEB20-150,0x100,0x030,0 CF-S12Z	11965709	150	100	30
CTEB20-150,0x100,0x032,0 CF-S12Z	11965711	150	100	32
CTEB20-150,0x100,0x055,0 CF-S12Z	11965717	150	100	55
CTEB20-150,0x100,0x060,0 CF-S12Z	11965720	150	100	60

Carbide blocks for wire erosion, as sintered

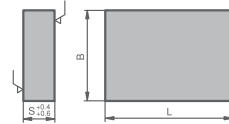
with grinding allowance on all dimensions,
thickness ground to clean up + 0.4/+ 0.6 mm, **CF-S18Z**



Type, description	Material	L mm	B mm	S mm
CTEB20-100,0x082,5x076,5 CF-S18Z	11797537	100	82,5	76,5
CTEB20-100,0x100,0x002,0 CF-S18Z	11797538	100	100	2
CTEB20-100,0x100,0x003,0 CF-S18Z	11797539	100	100	3
CTEB20-100,0x100,0x004,0 CF-S18Z	11797546	100	100	4
CTEB20-100,0x100,0x005,0 CF-S18Z	11797548	100	100	5
CTEB20-100,0x100,0x007,0 CF-S18Z	11797549	100	100	7
CTEB20-100,0x100,0x009,0 CF-S18Z	11797550	100	100	9
CTEB20-100,0x100,0x010,0 CF-S18Z	11797552	100	100	10
CTEB20-100,0x100,0x012,0 CF-S18Z	11797555	100	100	12
CTEB20-100,0x100,0x015,0 CF-S18Z	11797557	100	100	15
CTEB20-150,0x072,0x062,0 CF-S18Z	11965739	150	72	62
CTEB20-150,0x100,0x006,0 CF-S18Z	11797558	150	100	6
CTEB20-150,0x100,0x008,0 CF-S18Z	11797559	150	100	8
CTEB20-150,0x100,0x016,0 CF-S18Z	11797560	150	100	16
CTEB20-150,0x100,0x018,0 CF-S18Z	11965729	150	100	18
CTEB20-150,0x100,0x020,0 CF-S18Z	11797561	150	100	20
CTEB20-150,0x100,0x023,0 CF-S18Z	11965732	150	100	23
CTEB20-150,0x100,0x025,0 CF-S18Z	11797563	150	100	25
CTEB20-150,0x100,0x028,0 CF-S18Z	11965735	150	100	28
CTEB20-150,0x100,0x030,0 CF-S18Z	11797564	150	100	30
CTEB20-150,0x100,0x032,0 CF-S18Z	11797565	150	100	32
CTEB20-150,0x100,0x055,0 CF-S18Z	11965741	150	100	55
CTEB20-150,0x100,0x060,0 CF-S18Z	11965742	150	100	60

Carbide blocks for wire erosion, as sintered

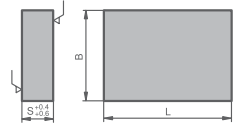
with grinding allowance on all dimensions,

thickness ground to clean up + 0.4/+ 0.6 mm, **CF-H25S+**

Type, description	Material	L mm	B mm	S mm
CTEB20-100,0x100,0x001,0 CF-H25S+	11966382	100	100	1
CTEB20-100,0x100,0x002,0 CF-H25S+	11966384	100	100	2
CTEB20-100,0x100,0x002,5 CF-H25S+	11966385	100	100	2,5
CTEB20-100,0x100,0x003,0 CF-H25S+	11627613	100	100	3
CTEB20-100,0x100,0x004,0 CF-H25S+	11627614	100	100	4
CTEB20-100,0x100,0x005,0 CF-H25S+	11966386	100	100	5
CTEB20-100,0x100,0x006,0 CF-H25S+	11627615	100	100	6
CTEB20-100,0x100,0x007,0 CF-H25S+	11966387	100	100	7
CTEB20-100,0x100,0x008,0 CF-H25S+	11627619	100	100	8
CTEB20-100,0x100,0x009,0 CF-H25S+	11797450	100	100	9
CTEB20-100,0x100,0x010,0 CF-H25S+	11627621	100	100	10
CTEB20-100,0x100,0x012,0 CF-H25S+	11627622	100	100	12
CTEB20-100,0x100,0x013,0 CF-H25S+	11966388	100	100	13
CTEB20-100,0x100,0x015,0 CF-H25S+	11627623	100	100	15
CTEB20-100,0x100,0x016,0 CF-H25S+	11966390	100	100	16
CTEB20-100,0x100,0x018,0 CF-H25S+	11966391	100	100	18
CTEB20-100,0x100,0x020,0 CF-H25S+	11627625	100	100	20
CTEB20-100,0x100,0x025,0 CF-H25S+	11797453	100	100	25
CTEB20-100,0x100,0x030,0 CF-H25S+	11627626	100	100	30
CTEB20-100,0x100,0x035,0 CF-H25S+	11627628	100	100	35
CTEB20-120,0x072,0x062,0 CF-H25S+	11966392	120	72	62
CTEB20-150,0x070,0x042,0 CF-H25S+	11966393	150	70	42
CTEB20-150,0x070,0x050,0 CF-H25S+	11797458	150	70	50
CTEB20-150,0x072,0x052,0 CF-H25S+	11797459	150	72	52
CTEB20-150,0x072,0x062,0 CF-H25S+	11966394	150	72	62
CTEB20-150,0x075,0x003,0 CF-H25S+	11966395	150	75	3
CTEB20-150,0x075,0x004,0 CF-H25S+	11966396	150	75	4
CTEB20-150,0x075,0x005,0 CF-H25S+	11966397	150	75	5
CTEB20-150,0x075,0x006,0 CF-H25S+	11966399	150	75	6
CTEB20-150,0x075,0x008,0 CF-H25S+	11797464	150	75	8
CTEB20-150,0x075,0x010,0 CF-H25S+	11797465	150	75	10
CTEB20-150,0x075,0x012,0 CF-H25S+	11797466	150	75	12
CTEB20-150,0x075,0x016,0 CF-H25S+	11966400	150	75	16
CTEB20-150,0x075,0x020,0 CF-H25S+	11797467	150	75	20
CTEB20-150,0x075,0x028,0 CF-H25S+	11966401	150	75	28
CTEB20-150,0x100,0x015,0 CF-H25S+	11966402	150	100	15
CTEB20-150,0x100,0x020,0 CF-H25S+	11966403	150	100	20
CTEB20-150,0x100,0x025,0 CF-H25S+	11966404	150	100	25
CTEB20-150,0x100,0x060,0 CF-H25S+	11966405	150	100	60
CTEB20-190,0x072,0x010,0 CF-H25S+	11966406	190	72	10
CTEB20-200,0x056,7x012,0 CF-H25S+	11966407	200	56,7	12
CTEB20-200,0x100,0x020,0 CF-H25S+	11966409	200	100	20
CTEB20-200,0x100,0x025,0 CF-H25S+	11966410	200	100	25

Carbide blocks for wire erosion, as sintered

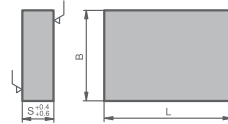
with grinding allowance on all dimensions,
thickness ground to clean up + 0.4/+ 0.6 mm, **CF-H40S+**



Type, description	Material	L mm	B mm	S mm
CTEB20-100,0x020,0x020,0 CF-H40S+	11966414	100	20	20
CTEB20-100,0x025,0x025,0 CF-H40S+	11966416	100	25	25
CTEB20-100,0x072,0x004,0 CF-H40S+	11966418	100	72	4
CTEB20-100,0x072,0x005,0 CF-H40S+	11966419	100	72	5
CTEB20-100,0x072,0x006,0 CF-H40S+	11966420	100	72	6
CTEB20-100,0x072,0x008,0 CF-H40S+	11966421	100	72	8
CTEB20-100,0x072,0x010,0 CF-H40S+	11966422	100	72	10
CTEB20-100,0x072,0x012,0 CF-H40S+	11966423	100	72	12
CTEB20-100,0x072,0x062,0 CF-H40S+	11966424	100	72	62
CTEB20-100,0x082,5x076,5 CF-H40S+	11797470	100	82,5	76,5
CTEB20-100,0x100,0x002,0 CF-H40S+	11797471	100	100	2
CTEB20-100,0x100,0x003,0 CF-H40S+	11627647	100	100	3
CTEB20-100,0x100,0x004,0 CF-H40S+	11627648	100	100	4
CTEB20-100,0x100,0x005,0 CF-H40S+	11797472	100	100	5
CTEB20-100,0x100,0x006,0 CF-H40S+	11627650	100	100	6
CTEB20-100,0x100,0x007,0 CF-H40S+	11797473	100	100	7
CTEB20-100,0x100,0x008,0 CF-H40S+	11797474	100	100	8
CTEB20-100,0x100,0x009,0 CF-H40S+	11966425	100	100	9
CTEB20-100,0x100,0x010,0 CF-H40S+	11627631	100	100	10
CTEB20-100,0x100,0x011,0 CF-H40S+	11966426	100	100	11
CTEB20-100,0x100,0x012,0 CF-H40S+	11627640	100	100	12
CTEB20-100,0x100,0x015,0 CF-H40S+	11627641	100	100	15
CTEB20-100,0x100,0x016,0 CF-H40S+	11797477	100	100	16
CTEB20-100,0x100,0x018,0 CF-H40S+	11627642	100	100	18
CTEB20-100,0x100,0x020,0 CF-H40S+	11627633	100	100	20
CTEB20-100,0x100,0x022,0 CF-H40S+	11966427	100	100	22
CTEB20-100,0x100,0x025,0 CF-H40S+	11797478	100	100	25
CTEB20-100,0x100,0x030,0 CF-H40S+	11797484	100	100	30
CTEB20-100,0x100,0x035,0 CF-H40S+	11797486	100	100	35
CTEB20-100,0x100,0x050,0 CF-H40S+	11627643	100	100	50
CTEB20-100,0x100,0x060,0 CF-H40S+	11627644	100	100	60
CTEB20-100,0x100,0x070,0 CF-H40S+	11966428	100	100	70
CTEB20-150,0x050,0x042,0 CF-H40S+	11797487	150	50	42
CTEB20-150,0x070,0x050,0 CF-H40S+	11797489	150	70	50
CTEB20-150,0x072,0x021,0 CF-H40S+	11966429	150	72	21
CTEB20-150,0x072,0x026,0 CF-H40S+	11797491	150	72	26
CTEB20-150,0x072,0x031,0 CF-H40S+	11966431	150	72	31
CTEB20-150,0x072,0x052,0 CF-H40S+	11797492	150	72	52
CTEB20-150,0x072,0x062,0 CF-H40S+	11797494	150	72	62
CTEB20-150,0x080,0x045,0 CF-H40S+	11797497	150	80	45
CTEB20-150,0x080,0x065,0 CF-H40S+	11797498	150	80	65
CTEB20-150,0x090,0x076,5 CF-H40S+	11966437	150	90	76,5
CTEB20-150,0x100,0x004,0 CF-H40S+	11797499	150	100	4
CTEB20-150,0x100,0x005,0 CF-H40S+	11797501	150	100	5

Carbide blocks for wire erosion, as sintered

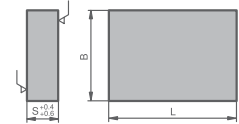
with grinding allowance on all dimensions,

thickness ground to clean up + 0.4/+ 0.6 mm, **CF-H40S+**

Type, description	Material	L mm	B mm	S mm
CTEB20-150,0x100,0x006,0 CF-H40S+	11797503	150	100	6
CTEB20-150,0x100,0x008,0 CF-H40S+	11627646	150	100	8
CTEB20-150,0x100,0x010,0 CF-H40S+	11627651	150	100	10
CTEB20-150,0x100,0x012,0 CF-H40S+	11627634	150	100	12
CTEB20-150,0x100,0x015,0 CF-H40S+	11627653	150	100	15
CTEB20-150,0x100,0x016,0 CF-H40S+	11627636	150	100	16
CTEB20-150,0x100,0x018,0 CF-H40S+	11966438	150	100	18
CTEB20-150,0x100,0x020,0 CF-H40S+	11627637	150	100	20
CTEB20-150,0x100,0x022,0 CF-H40S+	11797504	150	100	22
CTEB20-150,0x100,0x025,0 CF-H40S+	11797506	150	100	25
CTEB20-150,0x100,0x028,0 CF-H40S+	11797508	150	100	28
CTEB20-150,0x100,0x030,0 CF-H40S+	11627638	150	100	30
CTEB20-150,0x100,0x032,0 CF-H40S+	11797510	150	100	32
CTEB20-150,0x100,0x035,0 CF-H40S+	11797511	150	100	35
CTEB20-150,0x100,0x040,0 CF-H40S+	11797512	150	100	40
CTEB20-150,0x100,0x042,0 CF-H40S+	11966444	150	100	42
CTEB20-150,0x100,0x045,0 CF-H40S+	11966445	150	100	45
CTEB20-150,0x100,0x050,0 CF-H40S+	11966446	150	100	50
CTEB20-150,0x100,0x055,0 CF-H40S+	11797513	150	100	55
CTEB20-150,0x100,0x060,0 CF-H40S+	11966447	150	100	60
CTEB20-150,0x100,0x066,0 CF-H40S+	11966448	150	100	66
CTEB20-150,0x100,0x076,5 CF-H40S+	11966449	150	100	76,5
CTEB20-150,0x150,0x020,0 CF-H40S+	11797518	150	150	20
CTEB20-150,0x150,0x022,0 CF-H40S+	11797519	150	150	22
CTEB20-150,0x150,0x030,0 CF-H40S+	11966450	150	150	30
CTEB20-200,0x072,0x010,0 CF-H40S+	11797521	200	72	10
CTEB20-200,0x072,0x015,0 CF-H40S+	11966451	200	72	15
CTEB20-200,0x072,0x020,0 CF-H40S+	11966452	200	72	20
CTEB20-200,0x072,0x025,0 CF-H40S+	11966453	200	72	25
CTEB20-200,0x072,0x030,0 CF-H40S+	11797523	200	72	30
CTEB20-200,0x072,0x060,0 CF-H40S+	11966454	200	72	60
CTEB20-200,0x100,0x025,0 CF-H40S+	11797524	200	100	25
CTEB20-200,0x150,0x020,0 CF-H40S+	11966455	200	150	20
CTEB20-200,0x200,0x020,0 CF-H40S+	11797525	200	200	20
CTEB20-200,0x200,0x022,0 CF-H40S+	11797526	200	200	22
CTEB20-200,0x200,0x025,0 CF-H40S+	11797527	200	200	25
CTEB20-200,0x200,0x030,0 CF-H40S+	11797529	200	200	30
CTEB20-250,0x150,0x020,0 CF-H40S+	11797530	250	150	20
CTEB20-250,0x150,0x026,0 CF-H40S+	11797532	250	150	26
CTEB20-250,0x150,0x032,0 CF-H40S+	11966456	250	150	32
CTEB20-285,0x285,0x022,0 CF-H40S+	11797533	285	285	22
CTEB20-285,0x285,0x028,0 CF-H40S+	11797534	285	285	28
CTEB20-285,0x285,0x035,0 CF-H40S+	11797535	285	285	35

Carbide blocks for wire erosion, as sintered

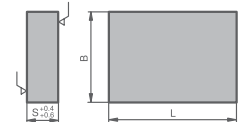
with grinding allowance on all dimensions,
thickness ground to clean up + 0.4/+ 0.6 mm, **CF-F35Z**



Type, description	Material	L mm	B mm	S mm
CTEB20-100,0x082,5x076,5 CF-F35Z	11965825	100	82,5	76,5
CTEB20-150,0x072,0x062,0 CF-F35Z	11965829	150	72	62
CTEB20-150,0x100,0x002,0 CF-F35Z	11965762	150	100	2
CTEB20-150,0x100,0x003,0 CF-F35Z	11965768	150	100	3
CTEB20-150,0x100,0x004,0 CF-F35Z	11965769	150	100	4
CTEB20-150,0x100,0x005,0 CF-F35Z	11965771	150	100	5
CTEB20-150,0x100,0x006,0 CF-F35Z	11965772	150	100	6
CTEB20-150,0x100,0x007,0 CF-F35Z	11965775	150	100	7
CTEB20-150,0x100,0x008,0 CF-F35Z	11965776	150	100	8
CTEB20-150,0x100,0x009,0 CF-F35Z	11965778	150	100	9
CTEB20-150,0x100,0x010,0 CF-F35Z	11965782	150	100	10
CTEB20-150,0x100,0x012,0 CF-F35Z	11965788	150	100	12
CTEB20-150,0x100,0x015,0 CF-F35Z	11965790	150	100	15
CTEB20-150,0x100,0x016,0 CF-F35Z	11965791	150	100	16
CTEB20-150,0x100,0x018,0 CF-F35Z	11965793	150	100	18
CTEB20-150,0x100,0x020,0 CF-F35Z	11965799	150	100	20
CTEB20-150,0x100,0x023,0 CF-F35Z	11965801	150	100	23
CTEB20-150,0x100,0x025,0 CF-F35Z	11965809	150	100	25
CTEB20-150,0x100,0x028,0 CF-F35Z	11965813	150	100	28
CTEB20-150,0x100,0x030,0 CF-F35Z	11965814	150	100	30
CTEB20-150,0x100,0x032,0 CF-F35Z	11965818	150	100	32
CTEB20-150,0x100,0x055,0 CF-F35Z	11965830	150	100	55
CTEB20-150,0x100,0x060,0 CF-F35Z	11965831	150	100	60

Carbide blocks for wire erosion, as sintered

with grinding allowance on all dimensions,
thickness ground to clean up + 0.4/+ 0.6 mm, **CF-20HP**



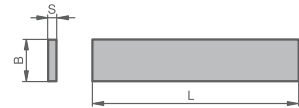
Type, description	Material	L mm	B mm	S mm
CTEB20-150,0x072,0x045,0 CF-20HP	11965755	150	72	45
CTEB20-150,0x075,0x062,0 CF-20HP	11965761	150	75	62
CTEB20-150,0x080,0x055,0 CF-20HP	11965759	150	80	55
CTEB20-150,0x100,0x008,0 CF-20HP	11965686	150	100	8
CTEB20-150,0x100,0x010,0 CF-20HP	11965692	150	100	10
CTEB20-150,0x100,0x012,0 CF-20HP	11965694	150	100	12
CTEB20-150,0x100,0x015,0 CF-20HP	11965696	150	100	15
CTEB20-150,0x100,0x020,0 CF-20HP	11965698	150	100	20
CTEB20-150,0x100,0x023,0 CF-20HP	11965701	150	100	23
CTEB20-150,0x100,0x025,0 CF-20HP	11965710	150	100	25
CTEB20-150,0x100,0x028,0 CF-20HP	11965750	150	100	28
CTEB20-150,0x100,0x030,0 CF-20HP	11965754	150	100	30
CTEB20-150,0x100,0x035,0 CF-20HP	11965757	150	100	35

Rectangular strips for punching dies as sintered,
with positive sintering tolerance, **CF-H40S+**



Type, description	Material	L mm	B mm	S mm
CTSS 02,5x02,5x80 CF-H40S+	11803282	80	2,5	2,5
CTSS 03,5X03,5X80 CF-H40S+	11803306	80	3,5	3,5
CTSS 04,5X02,5X80 CF-H40S+	11803285	80	4,5	2,5
CTSS 04,5X04,5X80 CF-H40S+	11803322	80	4,5	4,5
CTSS 05,5X02,5X80 CF-H40S+	11803288	80	5,5	2,5
CTSS 05,5X03,5X80 CF-H40S+	11803307	80	5,5	3,5
CTSS 05,5X05,5X80 CF-H40S+	11803331	80	5,5	5,5
CTSS 06,5X02,5X80 CF-H40S+	11803292	80	6,5	2,5
CTSS 06,5X03,5X80 CF-H40S+	11803308	80	6,5	3,5
CTSS 06,5X04,5X80 CF-H40S+	11803323	80	6,5	4,5
CTSS 06,5X06,5X80 CF-H40S+	11803341	80	6,5	6,5
CTSS 07,5X07,5X80 CF-H40S+	11803361	80	7,5	7,5
CTSS 08,5X02,5X80 CF-H40S+	11803297	80	8,5	2,5
CTSS 08,5X03,5X80 CF-H40S+	11803310	80	8,5	3,5
CTSS 08,5X04,5X80 CF-H40S+	11803324	80	8,5	4,5
CTSS 08,5X05,5X80 CF-H40S+	11803332	80	8,5	5,5
CTSS 08,5X06,5X80 CF-H40S+	11803342	80	8,5	6,5
CTSS 08,5X08,5X80 CF-H40S+	11803368	80	8,5	8,5
CTSS 10,5X02,5X80 CF-H40S+	11803299	80	10,5	2,5
CTSS 10,5X03,5X80 CF-H40S+	11803313	80	10,5	3,5
CTSS 10,5X04,5X80 CF-H40S+	11803325	80	10,5	4,5
CTSS 10,5X05,5X80 CF-H40S+	11803333	80	10,5	5,5
CTSS 10,5X06,5X80 CF-H40S+	11803343	80	10,5	6,5
CTSS 10,5X07,5X80 CF-H40S+	11803363	80	10,5	7,5
CTSS 10,5X08,5X80 CF-H40S+	11803369	80	10,5	8,5
CTSS 10,5X10,5X80 CF-H40S+	11803379	80	10,5	10,5
CTSS 12,5X02,5X80 CF-H40S+	11803301	80	12,5	2,5
CTSS 12,5X03,5X80 CF-H40S+	11803316	80	12,5	3,5
CTSS 12,5X04,5X80 CF-H40S+	11803326	80	12,5	4,5
CTSS 12,5X05,5X80 CF-H40S+	11803334	80	12,5	5,5
CTSS 12,5X06,5X80 CF-H40S+	11803346	80	12,5	6,5
CTSS 12,5X08,5X80 CF-H40S+	11803370	80	12,5	8,5
CTSS 12,5X10,5X80 CF-H40S+	11803381	80	12,5	10,5
CTSS 12,5X12,5X80 CF-H40S+	11803389	80	12,5	12,5
CTSS 14,5X02,5X80 CF-H40S+	11803304	80	14,5	2,5
CTSS 14,5X03,5X80 CF-H40S+	11803319	80	14,5	3,5
CTSS 14,5X14,5X80 CF-H40S+	11803395	80	14,5	14,5
CTSS 15,5X07,5X80 CF-H40S+	11803365	80	15,5	7,5
CTSS 15,5X10,5X80 CF-H40S+	11803384	80	15,5	10,5
CTSS 15,5X12,5X80 CF-H40S+	11803390	80	15,5	12,5
CTSS 16,5X02,5X80 CF-H40S+	11803305	80	16,5	2,5
CTSS 16,5X04,5X80 CF-H40S+	11803327	80	16,5	4,5
CTSS 16,5X05,5X80 CF-H40S+	11803335	80	16,5	5,5
CTSS 16,5X06,5X80 CF-H40S+	11803353	80	16,5	6,5

Rectangular strips for punching dies as sintered,
with positive sintering tolerance, **CF-H40S+**



Type, description	Material	L mm	B mm	S mm
CTSS 16,5X08,5X80 CF-H40S+	11803372	80	16,5	8,5
CTSS 16,5X16,5X80 CF-H40S+	11803399	80	16,5	16,5
CTSS 18,5X03,5X80 CF-H40S+	11803320	80	18,5	3,5
CTSS 18,5X07,5X80 CF-H40S+	11803366	80	18,5	7,5
CTSS 18,5X18,5X80 CF-H40S+	11803400	80	18,5	18,5
CTSS 20,5X03,5X80 CF-H40S+	11803321	80	20,5	3,5
CTSS 20,5X04,5X80 CF-H40S+	11803328	80	20,5	4,5
CTSS 20,5X05,5X80 CF-H40S+	11803336	80	20,5	5,5
CTSS 20,5X06,5X80 CF-H40S+	11803356	80	20,5	6,5
CTSS 20,5X07,5X80 CF-H40S+	11803367	80	20,5	7,5
CTSS 20,5X08,5X80 CF-H40S+	11803374	80	20,5	8,5
CTSS 20,5X10,5X80 CF-H40S+	11803385	80	20,5	10,5
CTSS 20,5X12,5X80 CF-H40S+	11803392	80	20,5	12,5
CTSS 20,5X14,5X80 CF-H40S+	11803396	80	20,5	14,5
CTSS 20,5X20,5X80 CF-H40S+	11803401	80	20,5	20,5
CTSS 25,5X04,5X80 CF-H40S+	11803330	80	25,5	4,5
CTSS 25,5X05,5X80 CF-H40S+	11803338	80	25,5	5,5
CTSS 25,5X06,5X80 CF-H40S+	11803359	80	25,5	6,5
CTSS 25,5X08,5X80 CF-H40S+	11803376	80	25,5	8,5
CTSS 25,5X10,5X80 CF-H40S+	11803386	80	25,5	10,5
CTSS 25,5X12,5X80 CF-H40S+	11803394	80	25,5	12,5
CTSS 25,5X14,5X80 CF-H40S+	11803398	80	25,5	14,5
CTSS 30,5X05,5X80 CF-H40S+	11803339	80	30,5	5,5
CTSS 30,5X06,5X80 CF-H40S+	11803360	80	30,5	6,5
CTSS 30,5X08,5X80 CF-H40S+	11803377	80	30,5	8,5

Rectangular strips for punching dies as sintered,
with positive sintering tolerance, **CF-S18Z**



Type, description	Material	L mm	B mm	S mm
CTSS 02,5X02,5X80 CF-S18Z	11803405	80	2,5	2,5
CTSS 03,5X03,5X80 CF-S18Z	11803418	80	3,5	3,5
CTSS 04,5X02,5X80 CF-S18Z	11803407	80	4,5	2,5
CTSS 04,5X04,5X80 CF-S18Z	11803430	80	4,5	4,5
CTSS 05,5X03,5X80 CF-S18Z	11803420	80	5,5	3,5
CTSS 05,5X05,5X80 CF-S18Z	11803451	80	5,5	5,5
CTSS 06,5X04,5X80 CF-S18Z	11803431	80	6,5	4,5
CTSS 06,5X06,5X80 CF-S18Z	11803459	80	6,5	6,5
CTSS 08,5X02,5X80 CF-S18Z	11803411	80	8,5	2,5
CTSS 08,5X03,5X80 CF-S18Z	11803421	80	8,5	3,5
CTSS 08,5X04,5X80 CF-S18Z	11803432	80	8,5	4,5
CTSS 08,5X05,5X80 CF-S18Z	11803452	80	8,5	5,5
CTSS 08,5X06,5X80 CF-S18Z	11803460	80	8,5	6,5
CTSS 08,5X08,5X80 CF-S18Z	11803474	80	8,5	8,5
CTSS 10,5X02,5X80 CF-S18Z	11803412	80	10,5	2,5
CTSS 10,5X03,5X80 CF-S18Z	11803422	80	10,5	3,5
CTSS 10,5X04,5X80 CF-S18Z	11803433	80	10,5	4,5
CTSS 10,5X05,5X80 CF-S18Z	11803453	80	10,5	5,5
CTSS 10,5X06,5X80 CF-S18Z	11803461	80	10,5	6,5
CTSS 10,5X08,5X80 CF-S18Z	11803475	80	10,5	8,5
CTSS 10,5X10,5X80 CF-S18Z	11803491	80	10,5	10,5
CTSS 12,5X02,5X80 CF-S18Z	11803414	80	12,5	2,5
CTSS 12,5X03,5X80 CF-S18Z	11803423	80	12,5	3,5
CTSS 12,5X04,5X80 CF-S18Z	11803434	80	12,5	4,5
CTSS 12,5X05,5X80 CF-S18Z	11803454	80	12,5	5,5
CTSS 12,5X06,5X80 CF-S18Z	11803462	80	12,5	6,5
CTSS 12,5X08,5X80 CF-S18Z	11803478	80	12,5	8,5
CTSS 12,5X10,5X80 CF-S18Z	11803497	80	12,5	10,5
CTSS 12,5X12,5X80 CF-S18Z	11803507	80	12,5	12,5
CTSS 14,5X02,5X80 CF-S18Z	11803415	80	14,5	2,5
CTSS 14,5X03,5X80 CF-S18Z	11803425	80	14,5	3,5
CTSS 15,5X10,5X80 CF-S18Z	11803501	80	15,5	10,5
CTSS 16,5X02,5X80 CF-S18Z	11803416	80	16,5	2,5
CTSS 16,5X04,5X80 CF-S18Z	11803449	80	16,5	4,5
CTSS 16,5X05,5X80 CF-S18Z	11803455	80	16,5	5,5
CTSS 16,5X06,5X80 CF-S18Z	11803463	80	16,5	6,5
CTSS 16,5X08,5X80 CF-S18Z	11803480	80	16,5	8,5
CTSS 18,5X03,5X80 CF-S18Z	11803427	80	18,5	3,5
CTSS 18,5X07,5X80 CF-S18Z	11803471	80	18,5	7,5
CTSS 20,5X03,5X80 CF-S18Z	11803429	80	20,5	3,5
CTSS 20,5X04,5X80 CF-S18Z	11803450	80	20,5	4,5
CTSS 20,5X05,5X80 CF-S18Z	11803456	80	20,5	5,5
CTSS 20,5X06,5X80 CF-S18Z	11803464	80	20,5	6,5
CTSS 20,5X07,5X80 CF-S18Z	11803472	80	16,5	7,5

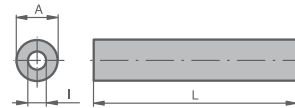
Rectangular strips for punching dies as sintered,
with positive sintering tolerance, **CF-S18Z**



Type, description	Material	L mm	B mm	S mm
CTSS 20,5X08,5X80 CF-S18Z	11803482	80	20,5	8,5
CTSS 20,5X10,5X80 CF-S18Z	11803504	80	20,5	10,5
CTSS 20,5X12,5X80 CF-S18Z	11803518	80	20,5	12,5
CTSS 20,5X14,5X80 CF-S18Z	11803525	80	20,5	14,5
CTSS 25,5X06,5X80 CF-S18Z	11803465	80	25,5	6,5
CTSS 25,5X08,5X80 CF-S18Z	11803485	80	25,5	8,5
CTSS 25,5X12,5X80 CF-S18Z	11803522	80	25,5	12,5
CTSS 25,5X14,5X80 CF-S18Z	11803526	80	25,5	14,5
CTSS 26,5X14,5X80 CF-S18Z	11803531	80	26,5	14,5
CTSS 30,5X05,5X80 CF-S18Z	11803457	80	30,5	5,5
CTSS 30,5X06,5X80 CF-S18Z	11803468	80	30,5	6,5
CTSS 30,5X08,5X80 CF-S18Z	11803487	80	30,5	8,5
CTSS 35,5X05,5X80 CF-S18Z	11803458	80	35,5	5,5
CTSS 35,5X06,5X80 CF-S18Z	11803469	80	35,5	6,5

Bushes for guides and dies

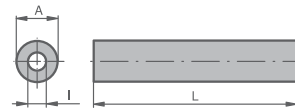
outer dimensions with grinding allowance, inner diameter
with positive sintering tolerances, **CF-H40S+**



Type, description	Material	A mm	I mm	L mm
CTSB 0501-110 CF-H40S+	11797639	5	1	110
CTSB 0601-110 CF-H40S+	11797641	6	1	110
CTSB 0701-110 CF-H40S+	11797575	7	1	110
CTSB 0801-110 CF-H40S+	11797644	8	1	110
CTSB 1001-110 CF-H40S+	11797645	10	1	110
CTSB 1202-110 CF-H40S+	11797646	12	2	110
CTSB 1402-110 CF-H40S+	11797666	14	2	110
CTSB 1602-110 CF-H40S+	11797670	16	2	110
CTSB 1802-110 CF-H40S+	11797672	18	2	110
CTSB 2002-110 CF-H40S+	11797674	20	2	110
CTSB 2202-110 CF-H40S+	11797676	20	2	110
CTSB 2503-110 CF-H40S+	11797677	25	3	110
CTSB 3003-110 CF-H40S+	11797679	30	3	110
CTSB 3203-110 CF-H40S+	11797680	32	3	110

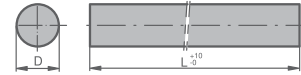
Bushes for guides and dies

outer dimensions with grinding allowance, inner diameter
with positive sintering tolerances, **CF-S18Z**



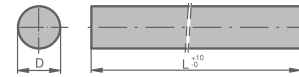
Type, description	Material	A mm	I mm	L mm
CTSB 0501-110 CF-S18Z	11797706	5	1	110
CTSB 0601-110 CF-S18Z	11797707	6	1	110
CTSB 0701-110 CF-S18Z	11797711	7	1	110
CTSB 0801-110 CF-S18Z	11797715	8	1	110
CTSB 1001-110 CF-S18Z	11797716	10	1	110
CTSB 1202-110 CF-S18Z	11797717	12	2	110
CTSB 1402-110 CF-S18Z	11797718	14	2	110
CTSB 1602-110 CF-S18Z	11797719	16	2	110
CTSB 1802-110 CF-S18Z	11797720	18	2	110
CTSB 2002-110 CF-S18Z	11797721	20	2	110
CTSB 2202-110 CF-S18Z	11797722	22	2	110
CTSB 2503-110 CF-S18Z	11797723	25	3	110
CTSB 3003-110 CF-S18Z	11797725	30	3	110
CTSB 3203-110 CF-S18Z	11797727	32	3	110

Rods for punching dies as sintered,
length: 330 mm, **CF-H40S+**



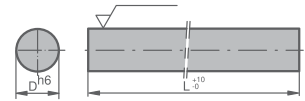
Type, description	Material	D mm	D-Tol. mm	L mm
RR 0115-330 CF-H40S+	11807645	1,15	-0/+0,15	330
RR 0165-330 CF-H40S+	11807651	1,65	-0/+0,15	330
RR 0180-330 CF-H40S+	11807653	1,80	-0/+0,15	330
RR 0220-330 CF-H40S+	11807654	2,20	-0/+0,20	330
RR 0270-330 CF-H40S+	11807655	2,70	-0/+0,20	330
RR 0325-330 CF-H40S+	11807657	3,25	-0/+0,10	330
RR 0370-330 CF-H40S+	11807662	3,70	-0/+0,20	330
RR 0420-330 CF-H40S+	11807663	4,20	-0/+0,20	330
RR 0470-330 CF-H40S+	11807668	4,70	-0/+0,20	330
RR 0520-330 CF-H40S+	11807670	5,20	-0/+0,25	330
RR 0570-330 CF-H40S+	11807672	5,70	-0/+0,25	330
RR 0620-330 CF-H40S+	11807674	6,20	-0/+0,25	330
RR 0670-330 CF-H40S+	11807675	6,70	-0/+0,25	330
RR 0720-330 CF-H40S+	11807676	7,20	-0/+0,30	330
RR 0770-330 CF-H40S+	11807677	7,70	-0/+0,30	330
RR 0820-330 CF-H40S+	11807679	8,20	-0/+0,30	330
RR 0870-330 CF-H40S+	11807681	8,70	-0/+0,30	330
RR 0920-330 CF-H40S+	11807683	9,20	-0/+0,30	330
RR 0970-330 CF-H40S+	11807684	9,70	-0/+0,30	330
RR 1020-330 CF-H40S+	11807685	10,20	-0/+0,30	330
RR 1070-330 CF-H40S+	11807686	10,70	-0/+0,30	330
RR 1120-330 CF-H40S+	11807687	11,20	-0/+0,30	330
RR 1170-330 CF-H40S+	11807688	11,70	-0/+0,30	330
RR 1220-330 CF-H40S+	11807690	12,20	-0/+0,30	330
RR 1270-330 CF-H40S+	11807691	12,70	-0/+0,30	330
RR 1320-330 CF-H40S+	11807693	13,20	-0/+0,30	330
RR 1420-330 CF-H40S+	11807694	14,20	-0/+0,30	330
RR 1470-330 CF-H40S+	11807695	14,70	-0/+0,30	330
RR 1520-330 CF-H40S+	11807696	15,20	-0/+0,30	330
RR 1620-330 CF-H40S+	11807698	16,20	-0/+0,45	330
RR 1720-330 CF-H40S+	11807699	17,20	-0/+0,45	330
RR 1820-330 CF-H40S+	11807701	18,20	-0/+0,45	330
RR 1920-330 CF-H40S+	11807702	19,20	-0/+0,45	330
RR 2020-330 CF-H40S+	11807704	20,20	-0/+0,45	330
RR 2120-330 CF-H40S+	11807708	21,20	-0/+0,55	330
RR 2220-330 CF-H40S+	11807710	22,20	-0/+0,55	330
RR 2320-330 CF-H40S+	11807712	23,20	-0/+0,55	330
RR 2420-330 CF-H40S+	11807713	24,20	-0/+0,55	330
RR 2520-330 CF-H40S+	11807714	25,20	-0/+0,65	330
RR 2620-330 CF-H40S+	11807715	26,20	-0/+0,65	330
RR 2820-330 CF-H40S+	11807716	28,20	-0/+0,65	330
RR 3020-330 CF-H40S+	11807717	30,20	-0/+0,65	330
RR 3220-330 CF-H40S+	11807719	32,20	-0/+0,65	330

Rods for punching dies as sintered,
length: 330 mm, **CF-S18Z**



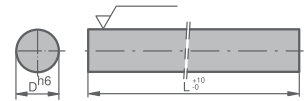
Type, description	Material	D mm	D-Tol. mm	L mm
RR 0115-330 CF-S18Z	11807741	1,15	-0/+0,15	330
RR 0165-330 CF-S18Z	11807743	1,65	-0/+0,15	330
RR 0180-330 CF-S18Z	11807745	1,80	-0/+0,15	330
RR 0220-330 CF-S18Z	11807746	2,20	-0/+0,20	330
RR 0270-330 CF-S18Z	11807747	2,70	-0/+0,20	330
RR 0325-330 CF-S18Z	11807748	3,25	-0/+0,10	330
RR 0370-330 CF-S18Z	11807749	3,70	-0/+0,20	330
RR 0420-330 CF-S18Z	11807750	4,20	-0/+0,20	330
RR 0470-330 CF-S18Z	11807751	4,70	-0/+0,20	330
RR 0520-330 CF-S18Z	11807752	5,20	-0/+0,25	330
RR 0570-330 CF-S18Z	11807754	5,70	-0/+0,25	330
RR 0620-330 CF-S18Z	11807755	6,20	-0/+0,25	330
RR 0670-330 CF-S18Z	11807757	6,70	-0/+0,25	330
RR 0720-330 CF-S18Z	11807758	7,20	-0/+0,30	330
RR 0770-330 CF-S18Z	11807759	7,70	-0/+0,30	330
RR 0820-330 CF-S18Z	11807761	8,20	-0/+0,30	330
RR 0870-330 CF-S18Z	11807762	8,70	-0/+0,30	330
RR 0920-330 CF-S18Z	11807767	9,20	-0/+0,30	330
RR 0970-330 CF-S18Z	11807768	9,70	-0/+0,30	330
RR 1020-330 CF-S18Z	11807769	10,20	-0/+0,30	330
RR 1070-330 CF-S18Z	11807770	10,70	-0/+0,30	330
RR 1120-330 CF-S18Z	11807771	11,20	-0/+0,30	330
RR 1170-330 CF-S18Z	11807772	11,70	-0/+0,30	330
RR 1220-330 CF-S18Z	11807773	12,20	-0/+0,30	330
RR 1270-330 CF-S18Z	11807774	12,70	-0/+0,30	330
RR 1320-330 CF-S18Z	11807775	13,20	-0/+0,30	330
RR 1420-330 CF-S18Z	11807776	14,20	-0/+0,30	330
RR 1470-330 CF-S18Z	11807777	14,70	-0/+0,30	330
RR 1520-330 CF-S18Z	11807778	15,20	-0/+0,30	330
RR 1620-330 CF-S18Z	11807779	16,20	-0/+0,45	330
RR 1720-330 CF-S18Z	11807780	17,20	-0/+0,45	330
RR 1820-330 CF-S18Z	11807781	18,20	-0/+0,45	330
RR 1920-330 CF-S18Z	11807782	19,20	-0/+0,45	330
RR 2020-330 CF-S18Z	11807783	20,20	-0/+0,45	330
RR 2120-330 CF-S18Z	11807784	21,20	-0/+0,55	330
RR 2220-330 CF-S18Z	11807785	22,20	-0/+0,55	330
RR 2320-330 CF-S18Z	11807786	23,20	-0/+0,55	330
RR 2420-330 CF-S18Z	11807787	24,20	-0/+0,55	330
RR 2520-330 CF-S18Z	11807788	25,20	-0/+0,65	330
RR 2620-330 CF-S18Z	11807789	26,20	-0/+0,65	330
RR 2820-330 CF-S18Z	11807790	28,20	-0/+0,65	330
RR 3020-330 CF-S18Z	11807791	30,20	-0/+0,65	330
RR 3220-330 CF-S18Z	11807792	32,20	-0/+0,65	330

Rods for punching dies diameter ground to h6,
length: 330 mm, **CF-H40S+**



Type, description	Material	D mm	D-Tol. mm	L mm
RG 0100-330 CF-H40S+ h6	11807720	1,00	+0/-0,006	330
RG 0150-330 CF-H40S+ h6	11807722	1,50	+0/-0,006	330
RG 0200-330 CF-H40S+ h6	11807723	2,00	+0/-0,006	330
RG 0250-330 CF-H40S+ h6	11807724	2,50	+0/-0,006	330
RG 0300-330 CF-H40S+ h6	11807726	3,00	+0/-0,006	330
RG 0350-330 CF-H40S+ h6	11807727	3,50	+0/-0,008	330
RG 0400-330 CF-H40S+ h6	11807728	4,00	+0/-0,008	330
RG 0450-330 CF-H40S+ h6	11807729	4,50	+0/-0,008	330
RG 0500-330 CF-H40S+ h6	11807730	5,00	+0/-0,008	330
RG 0550-330 CF-H40S+ h6	11807731	5,50	+0/-0,008	330
RG 0600-330 CF-H40S+ h6	11807732	6,00	+0/-0,008	330
RG 0700-330 CF-H40S+ h6	11807734	7,00	+0/-0,009	330
RG 0800-330 CF-H40S+ h6	11807735	8,00	+0/-0,009	330
RG 0900-330 CF-H40S+ h6	11807738	9,00	+0/-0,009	330
RG 1000-330 CF-H40S+ h6	11807739	10,00	+0/-0,009	330

Rods for punching dies diameter ground to h6,
length: 330 mm, **CF-S18Z**



Type, description	Material	D mm	D-Tol. mm	L mm
RG 0100-330 CF-S18Z h6	11807793	1,00	+0/-0,006	330
RG 0150-330 CF-S18Z h6	11807794	1,50	+0/-0,006	330
RG 0200-330 CF-S18Z h6	11807795	2,00	+0/-0,006	330
RG 0250-330 CF-S18Z h6	11807796	2,50	+0/-0,006	330
RG 0300-330 CF-S18Z h6	11807797	3,00	+0/-0,006	330
RG 0350-330 CF-S18Z h6	11807798	3,50	+0/-0,008	330
RG 0400-330 CF-S18Z h6	11807799	4,00	+0/-0,008	330
RG 0450-330 CF-S18Z h6	11807800	4,50	+0/-0,008	330
RG 0500-330 CF-S18Z h6	11807801	5,00	+0/-0,008	330
RG 0550-330 CF-S18Z h6	11807802	5,50	+0/-0,008	330
RG 0600-330 CF-S18Z h6	11807803	6,00	+0/-0,008	330
RG 0650-330 CF-S18Z h6	11807804	6,50	+0/-0,009	330
RG 0700-330 CF-S18Z h6	11807805	7,00	+0/-0,009	330
RG 0750-330 CF-S18Z h6	11807806	7,50	+0/-0,009	330
RG 0800-330 CF-S18Z h6	11807807	8,00	+0/-0,009	330
RG 0850-330 CF-S18Z h6	11807808	8,50	+0/-0,009	330
RG 0900-330 CF-S18Z h6	11807809	9,00	+0/-0,009	330
RG 0950-330 CF-S18Z h6	11807810	9,50	+0/-0,009	330
RG 1000-330 CF-S18Z h6	11807811	10,00	+0/-0,009	330

Rods for powder compaction tools as sintered,
with grinding allowance on all dimensions, **CF-H40S+**



Type, description	Material	A mm	L mm
CTPP-035000-320 CF-H40S+	11801200	35	320
CTPP-040000-320 CF-H40S+	11801201	40	320
CTPP-045000-320 CF-H40S+	11801202	45	320
CTPP-050000-320 CF-H40S+	11801204	50	320
CTPP-055000-320 CF-H40S+	11801205	55	320
CTPP-060000-320 CF-H40S+	11801207	60	320
CTPP-065000-320 CF-H40S+	11801208	65	320
CTPP-070000-320 CF-H40S+	11801209	70	320
CTPP-075000-320 CF-H40S+	11801210	75	320
CTPP-080000-320 CF-H40S+	11801211	80	320
CTPP-085000-320 CF-H40S+	11801212	85	320
CTPP-090000-320 CF-H40S+	11801213	90	320
CTPP-095000-320 CF-H40S+	11801214	95	320
CTPP-100000-320 CF-H40S+	11801215	100	320
CTPP-110000-265 CF-H40S+	11801216	110	265
CTPP-120000-240 CF-H40S+	11801217	120	240
CTPP-130000-170 CF-H40S+	11801219	130	170
CTPP-140000-170 CF-H40S+	11801220	140	170
CTPP-150000-130 CF-H40S+	11801221	150	130
CTPP-160000-130 CF-H40S+	11801227	160	130
CTPP-170000-130 CF-H40S+	11801234	170	130
CTPP-180000-130 CF-H40S+	11801238	180	130
CTPP-200000-120 CF-H40S+	11801250	200	120
CTPP-220000-120 CF-H40S+	11801252	220	120

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CERATIZIT Group

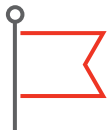
Carbide pioneer and global player

For over **90 years**, CERATIZIT has been a pioneer in the development of exceptional hard material products for cutting tools and wear protection.

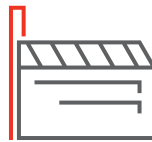
The privately owned company, headquartered in Mamer, Luxembourg, develops and manufactures highly specialised tungsten carbide cutting tools, inserts, rods and wear parts.

The CERATIZIT Group is the **market leader** in several wear part application areas and develops successful new types of hard metal, cermet and ceramic grades, which are used for instance in the wood and stone working industry.

Facts and figures



1 headquarters
Mamer / Luxembourg



24
production sites



50
sales subsidiaries



6,000
employees



> 90,000
different products



> 600
patents and utility models



> 100
employees in R&D



> 100
innovation awards



30%
new products created
in the last 5 years

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