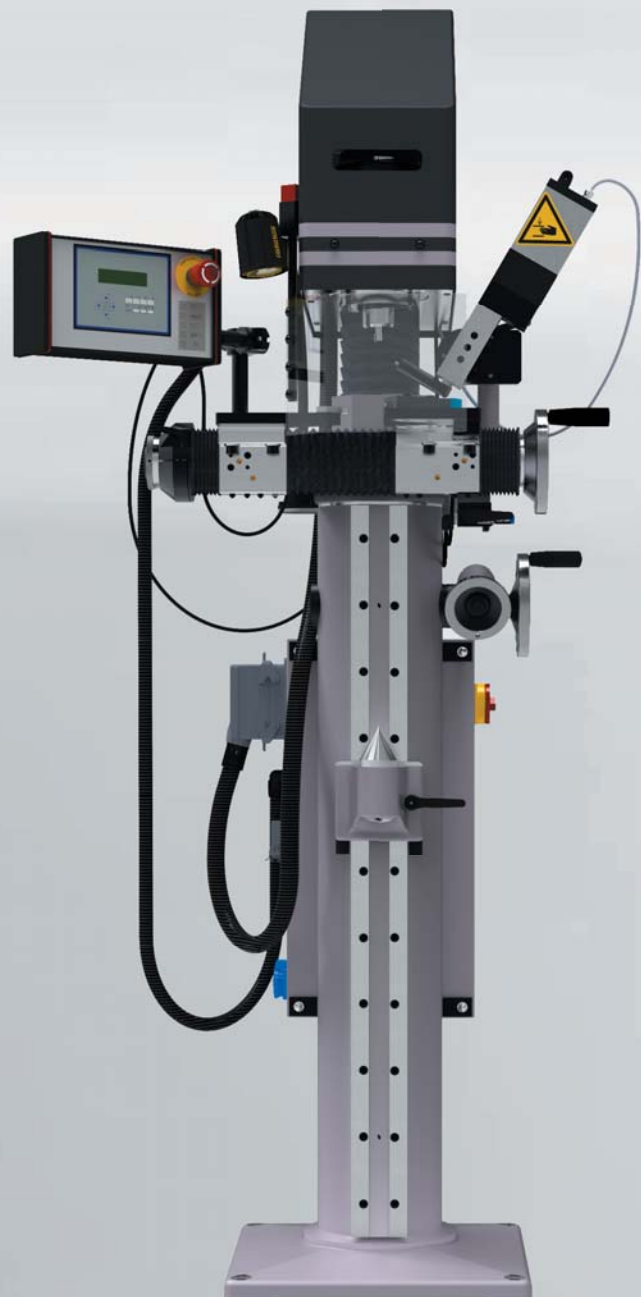
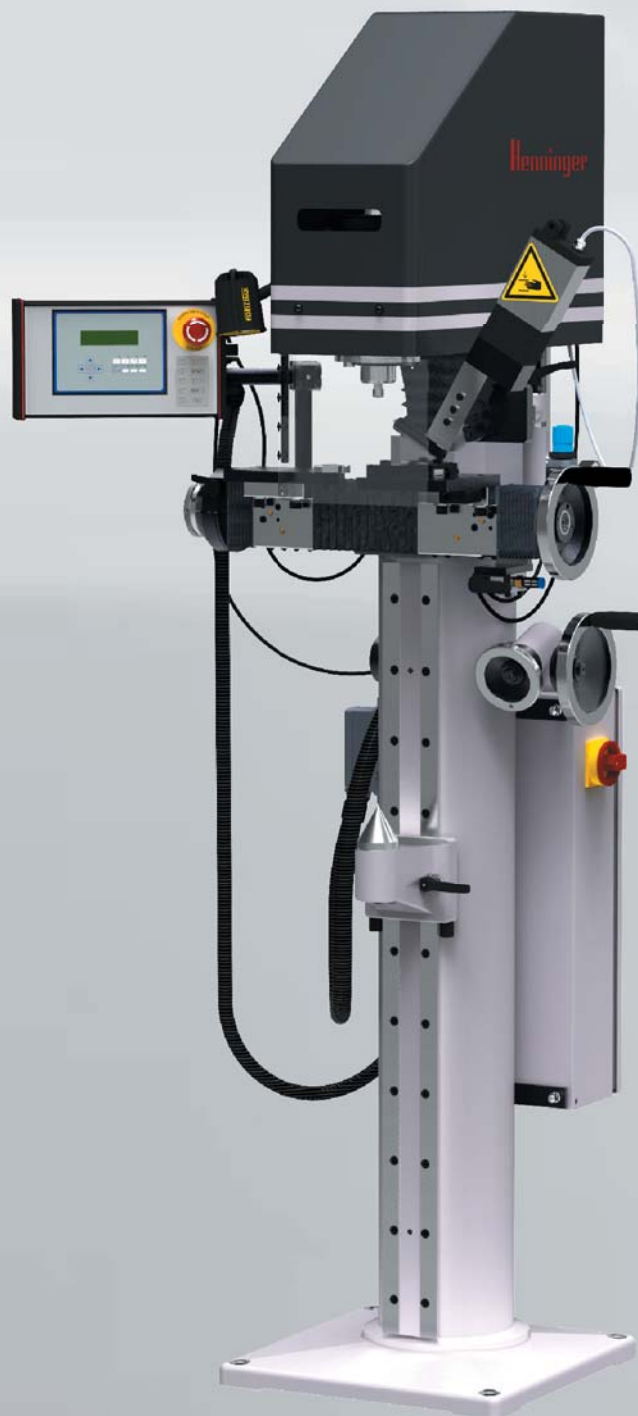


Henninger
P R Ä Z I S I O N S T E C H N I K

Centre Grinding Machines

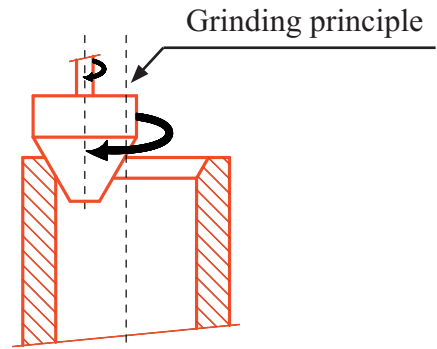
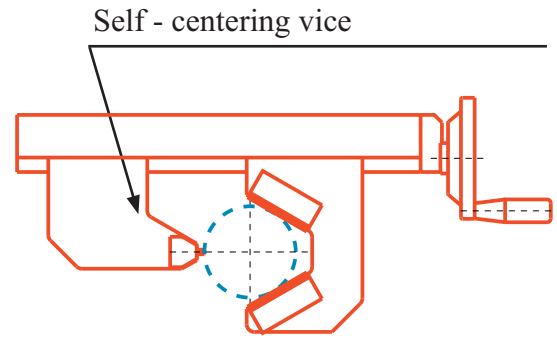
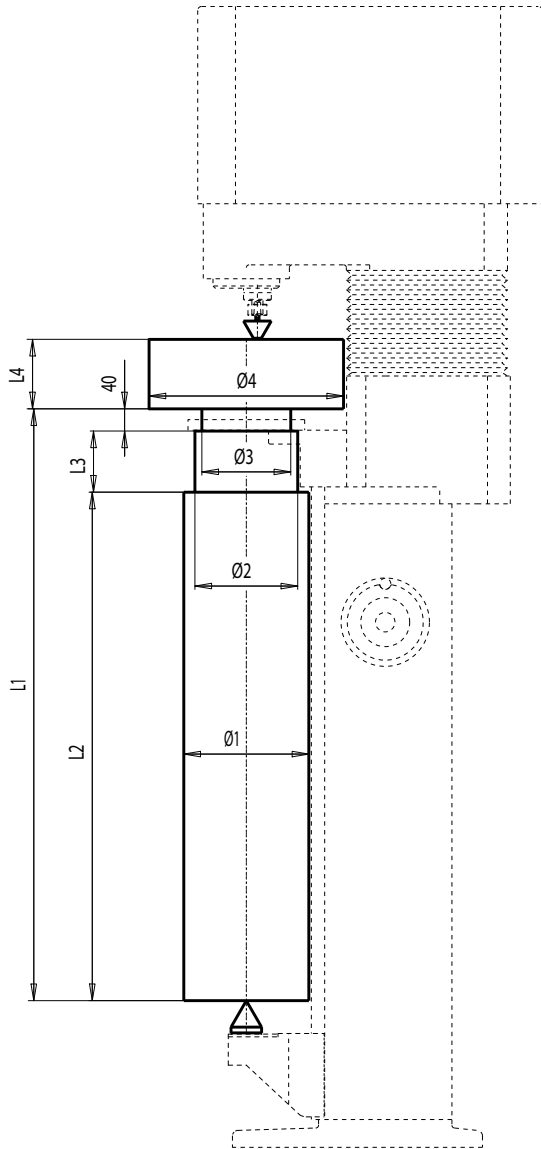


Type ZS 102 - 201



Technical Data of Henninger Centre Grinding Machines

Machine Type	ZS 102	ZS 201
Centre hole grinding range	Ø 1 - 58 mm	Ø 2 - 90 mm
Dimensions grinding spindle	Ø 50 x 250 mm	Ø 50 x 250 mm
Collets	Ø 1 - 7 mm DIN 6499	Ø 1 - 8 mm DIN 6388
Grinding spindle rpm (min ⁻¹)	16.000 - 40.000 (7 steps)	9.600 - 24.000 (7 steps)
Grinding abrasives	EK, HM, CBN, D	
Max.grinding wheel Ø (45 m/sec)	20 mm	50 mm
Ø Tailstock tip	58 mm	
Eccentric rpm	50 min ⁻¹	
Dressing angle range	45° - 120°	
Set dressing angle	60°	
Dressing stroke	50 mm	
Grinding wheel head stroke	100 mm	150 mm
Digital display (Reset, 5 µm resolution)	yes	
Grinding spindle motor power	250 Watt	
Eccentric motor power	90 Watt	
Set-up for the dust extraction equipment	yes	
Machine power consumption	yes	
Electrical power input	approx. 2.0 kW	
Connected electrical supply for machine	400V, 50Hz, 3Ph, N, PE	
Clamping range of the vice (Ø)	5 - 100 mm	5-105 mm / 95 - 160 mm
Clamping range of the vice (Ø) accessory	-	140 - 225 mm
max. weight of the workpiece	100 kg	500 kg
Workpiece length of the machine - 1200	20 - 1100 mm	20 - 1150 mm
Workpiece length of the machine - 1500	-	20 - 1500 mm
Workpiece length of the machine - 2000	-	20 - 2000 mm
Machine width	1000 mm	1100 mm
Machine depth	700 mm	700 mm
Machine height of the machine - 1200	2000 mm	2100 mm
Machine height of the machine - 1500	-	2400 mm
Machine height of the machine - 2000	-	3000 mm
Weight of the machine - 1200	approx. 300 kg	approx. 450 kg
Weight of the machine - 1500	-	approx. 540 kg
Weight of the machine - 2000	-	approx. 620 kg
Colour basic part	RAL 7035 light-grey	
Colour upper part	RAL 7016 anthracite grey	
Pneumatic quick lift	Option (cannot be retrofitted), for serial production	
Stroke	25 mm	
Dust extraction (accessory)	can be retrofitted	
Motor power	1.1 kW	
Airstream	210 m ³ /h	
Max. negative pressure	20.000 Pa	
Protection class electrical	IP 54	
Noise pressure level	approx. 70 dB(A)	
Drive of the workpiece (accessory)	can be retrofitted	
Revolution	approx. 45 min ⁻¹	approx. 45 min ⁻¹ / 23 min ⁻¹
Motor power	90 Watt	
Further accessories on request		



Workpiece - dimensions of the Henninger Centre - Grinding - Machines

Machine Type	L1	L2	L3	L4 max	Ø1	Ø2	Ø3	Ø3 Special	Ø4
102/1200	970	825	105	80	185	130	5 - 100		250
201/1200	1065	915	110	125	325	285	5 - 105 95 - 160	160 - 225	450
201/1500	1435	1285	110	125	325	285	5 - 105 95 - 160	160 - 225	450
201/2000	1985	1835	110	125	325	285	5 - 105 95 - 160	160 - 225	450

Centre Grinding Machines

Currently, as never before, there is an ever-increasing demand for higher workpiece accuracies. This becomes very apparent by the amount of workpieces that can only be produced using the current machine parks after undergoing very exacting set-up procedures and thus long change-over times.

Does this mean that new machines have to be purchased immediately?

Experience has shown that such a decision makes sense because it facilitates rational, interruption-free, and thus, productive manufacturing. This of course brings many substantial advantages - even for simple parts.

At Henninger we recognised this many years ago and that's why we have been building centre hole grinding machines since 1972 - at first for ourselves and since then more than 600 for other companies.

Advantages of centre grinding operations

- higher process stability
- economic efficiency
- low reject rate
- higher accuracy



Type ZS 102 - 201 CNC



It is possible to provide the Centre-Grinding-Machine with a CNC-Control for large batch production. Furthermore a workpiece handling-system is optional in case that the machine is loaded automatically.

The CNC-Control is programmed by means of a teaching/reading program.

After programming and setting the machine the grinding process is started.
If practical, there is a possibility for unattended fully automated center grinding.

Description of function for CNC machines:

The workpiece is clamped in the vice. Afterwards the safety distance towards the workpiece is chosen and read into the control. When set on automatic operation, the grinding head moves on fast traverse up to the programmed clearance. Following this, the grinding head moves on with a slower feed until the grinding pin touches the workpiece. Now the programmed grinding operation starts.

Programming possibilities:

- Grinding until the centre is ground completely
- Programming of a defined measurement (Centre is ground onto a certain depth)

For economic reasons the CNC machine will not be equipped with a dressing device because the dressing operation consumes too much time. With CBN grinding pins quantities up to 3,000 are possible with only one pin.

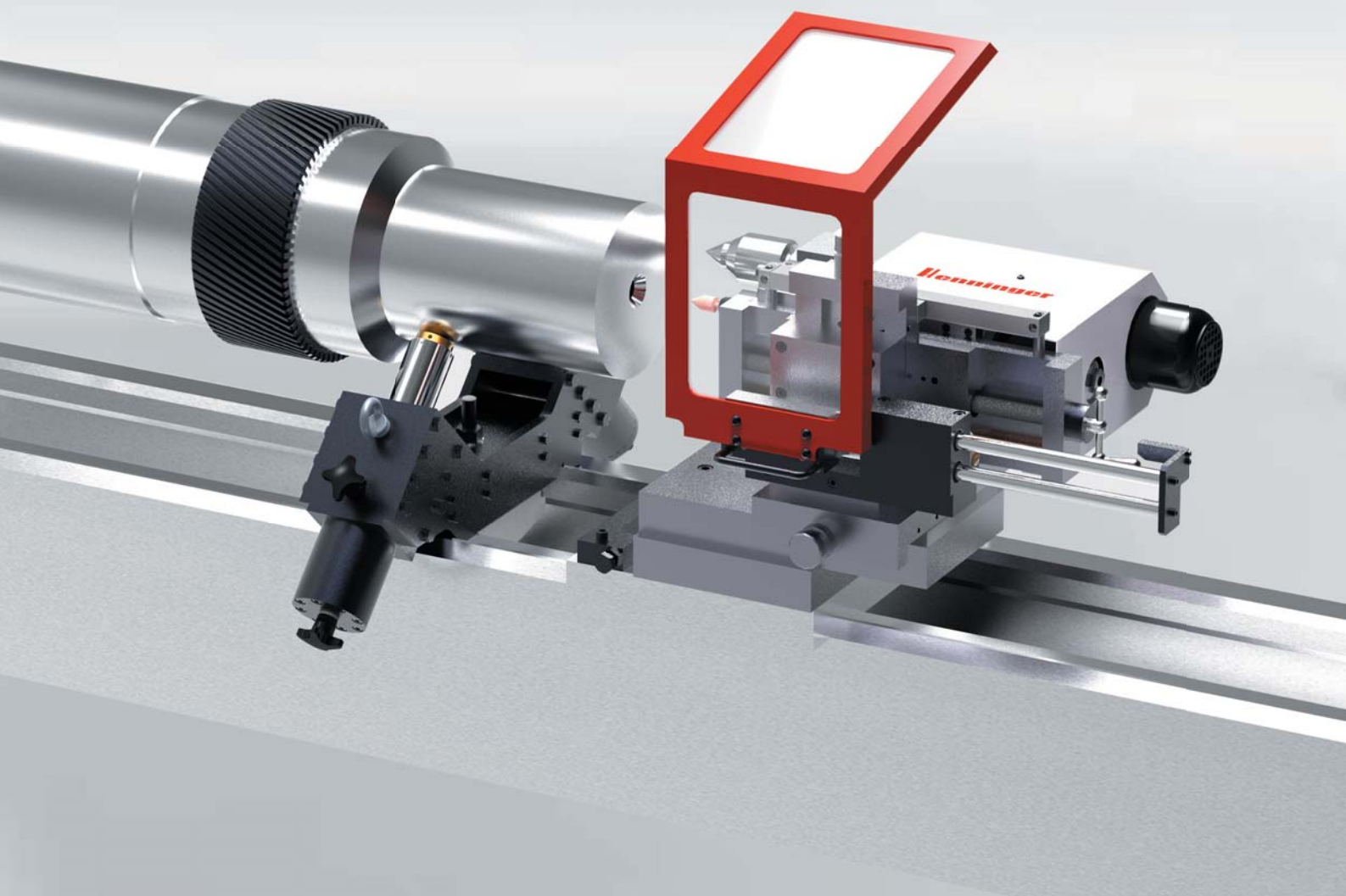
Nonetheless it is possible to supply a dressing unit for the CNC Machine

The Henninger CNC control is delivered with a display which shows all necessary data.

It is operated by means of push-buttons and can be set to various steps of 0,1, 0,01 and 0,001 mm
The Henninger Centre Grinding machine is designed with modular CNC Equipment and can easily be refitted.

If necessary, the CNC Centre Grinding Machines will be upgraded with a handling system.

Type ZS 251



The Henninger Centre Grinding Unit is used for big and heavy workpieces. Generally the Centre Grinding Unit is mounted on top of a lathe. Max. diameter and the length of the workpieces grindable are dependent on the lathe's centre height and bed length. The workpiece is clamped within the chucks of the lathe and held by the steady rest. Then it will be turned and measured. Corrections needed will be made by means of the two compound slide rests.

Scope of supply:

The Henninger Centre Grinding Unit Type 251 consists of 2 slides and a precision grinding unit designed for the eccentric movement. This spindle is equipped with an electric dressing fixation, which simplifies dressing. The dressing device will rotate against a fixed stop and is electrically secured.

The eccentric runs 30 rpm's and the travelling distance is 20 mm. Max. diameter of the grinding pin is 50 mm, as a result it is possible to grind centres of 80 mm if the workpiece is fixed (stationary). In case that the workpiece rotates centres up to 150 mm diameter can be ground. It is possible to set the HF-Spindle steplessly from 10,000 – 30,000 rpm.

The moveable protective glass is electrically secured. It is operated by a control panel.



Type ZS 1000



Our latest development ZS 1000 is a one-sided, vertical Centre Grinding Machine, offered in 3 different lengths for workpieces up to approx. 3,000 mm.

Special features compared to our reliable machines type ZS 102/201:

- workpiece weights up to 1,000 kg
- High Frequency Motor Spindle ranging 3,000 to 30,000 rpm's min⁻¹
- Clamping vice and swivelling grinding head, adjustable in height

Options: pivoting grinding head, in order to top load and unload heavy workpieces
 swivel centre for measuring the workpieces
 motorized tailstock

Roundness of the centres remains, just as Henninger's conventional Centre Grinding Machines, within the same accuracy of 0,001 mm, likewise size of the centres and operating mode of the workpiece clamping by means of a vice.

Noteworthy is the electrical handwheel for placing the z-axis. Different from other Centre Grinding Machines the grinding infeed is run electrically.

Technical Machine Data of Henninger Centre Grinding Machine ZS 1000

Technical Machine Data of Henninger Centre Grinding Machine ZS 1000				
Workpiece length max.		1000 mm	2000 mm	3000 mm
Workpiece length min.		50 mm		
Clamping range of the vice		Ø 30 - 275 mm		
Weight of the workpiece max.		1000 kg		
Working-stroke of the grinding head		100 mm		
min. and max. diameter of the centres		2 - 80 mm		
Grinding spindle rotational speed		3.000 - 30.000 min ⁻¹		
Grinding spindle power		0,3 kW bei 30.000 min ⁻¹		
Collets		Ø 1 - 8mm DIN 6388		
Eccentric motor rotational speed		50 min ⁻¹		
Eccentric adjustment		0 - 50 mm		
Cone angle centre hole		45° - 90°		
Control		separate switchboard		
Voltage		400 Volt, 50 Hz, 3Ph, N, PE		
Standard colour machine (two coloured)		RAL 7035 light grey / RAL 7016 anthracite grey		
Standard colour switchboard		RAL 7035 light grey		
Weight of the machine		800 kg	1000 kg	1300 kg
Machine size	Height	2100 mm	3100 mm	4100 mm
	Width	1210 mm	1210 mm	1210 mm
	Depth	851 mm	1000 mm	1000 mm
Switchboard size	Height	1066 mm		
	Width	600 mm		
	Depth	480 mm		
Further accessories on request				

Type ZS 2000



Our brand new designed CNC-controlled Centre-Grinding-Machine manufactured as a horizontal and double-sided model is especially developed for mass production. A connection for an automatic loading and unloading system is electrically provided. The clear and colourful Operation Panel and also the Teach-in-Programming have helped to develop a very simple control, which allows to produce either small quantities or single workpieces economically. The grinded centres accuracy meets likewise our vertical Centre Grinding Machines quality of the types ZS 102/201 in the range of approx. 0,001 mm. The Centre Grinding Machine complies with the CE-standards.

Technical Machine Data of Henninger Centre Grinding Machine ZS 2000				
Workpiece length max.		800 mm	1200 mm	
Weight of the workpiece max.		20 kg	50 kg	
Diameter of the workpiece max.		Ø 5 - 100 mm	Ø 5 - 150 mm	
Clamping of the workpiece		double central clamping vices electrically driven		
Quantity of grinding heads		2 pc		
Stroke of the grinding heads		100 mm		
Centre hole of the grinding heads		2 - 60 mm		
Grinding spindle		frequency controlled		
Grinding spindle rotational speed		approx. 10.000 - 30.000 min ⁻¹		
Grinding spindle power		0.3 kW bei 30.000 min ⁻¹		
Collets		Ø 1 - 8 mm DIN 6388		
Eccentric motor rotational speed		approx. 50 min ⁻¹		
Cone angle centre hole		45° - 90°, degree up to grinding pin		
CNC-Control		Siemens S7		
Motors		2 pc High Frequency Spindles		
		2 pc asynchronous motors for eccentric		
		2 pc stepping motors for stroke		
		2 pc servo motors for workpiece clamping		
Voltage		400 V, 50 Hz, 3Ph, N, PE		
Weight of the machine		approx. 930 kg	approx. 1110 kg	
Machine size		Height		
		approx. 2000 mm		
		Width	approx. 2000 mm	approx. 2.500 mm
		Depth	approx. 800 mm	approx. 850 mm
Standard colour machine two coloured		RAL 7035 light-grey/RAL 7001 silver-grey		
Further accessories on request				





Henninger

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