isel®

successful with
CNC TECHNOLOGY

SPINDLE MOTORS

incl. accessories

iselGermany

isel® successful with CNC TECHNOLOGY

aalberts advanced mechatronics

isel Germany is part of the stocklisted company Aalberts since february 2022. Since the inception in 1975, Aalberts is where technology matters and real progress can be made - humanly, financially and environmentally.

Greatness is made of shared knowledge

Just like isel Germany, all Aalberts companies stand their ground in the engineering and technology world. As the world is changing rapidly and innovation cycles are reduced dramatically, the open and pragmatic internal culture at Aalberts helps us to exchange fresh thinking and to embrace new technologies.

As of: April 2024

Content

Around the spindle

During the development of our spindle motors, great emphasis was placed above all on functionality, quality and optimum pricing. In addition, our spindle motors are particularly durable. Due to the particularly slim design and the square housing cross-section, series arrangements with minimum distances can be realized.

As far as the electrical design is concerned, our motors are three-phase squirrel-cage rotors with 2-pole windings, designed in accordance with DIN EN 60034. The insulating materials of the windings are manufactured in accordance with thermal class F. The motors are dynamically precision-wound. The motors are dynamically finely balanced, so that good running good running characteristics are achieved even at high speeds. They cover a total speed range from 1,000 to 50,000 rpm.

All spindle motors are completely manufactured in Europe, meet at least the requirements of protection class IP54 and are thus also approved for the wood dust area.

In our offer you will find not only the spindle motors themselves, but also all necessary cables in different lengths and preset, reliable frequency converters for the control connection. The programming of these frequency converters is handled by isel, as is the tuning of all pneumatic parts, which simplifies commissioning for the customer and thus saves time.

By integrating development, production, sales and service under one roof, we have very short distances compared to many of our competitors and have our own year-round repair service.

The iSA spindle motors are air-cooled with an integrated fan. This allows easy installation for quick use of the milling spindle in your CNC system.

Extensive accessories such as dust extraction, minimum quantity lubrication technology, collets, SK holders, tool changers and our unique, patented CoolMin system for optimal and economical tool cooling without residues complete our product range.

Do you have questions about our spindles?

Then contact our technical sales department. They will give you information about the individual spindle motors including accessories and will prepare your personal offer on request!

Plant in Eichenzell

36124 Eichenzell, Hesse
Total area: approx. 30,000 m²

Plant in Eiterfeld

36132 Eiterfeld, Hesse
Total area: approx. 52,000 m²

Contact | Advice | Support

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Mon to Thu 7:30 a.m. - 4:30 p.m.
Friday 7:30 a.m. - 2:00 p.m.

Dispatch and incoming goods
Mon to Thu 7:00 a.m. - 3:00 p.m.
Friday 7:00 a.m. - 12:30 p.m.

Self-collector
Mon to Thu 8:00 a.m. - 1:00 p.m.
Friday 8:00 a.m. - 11:00 a.m.

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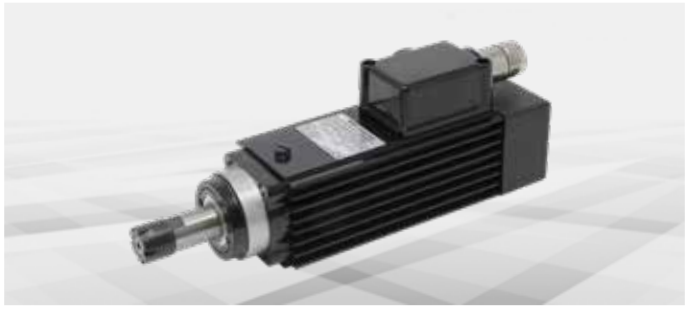
iSA Spindle motors with manual tool changer



iSA 750

- rated output 0.75 kW
- speed range 3,000 rpm – 28,000 rpm

page 8

iSA 1500

- rated output 1.5 kW
- speed range 5,000 rpm – 20,000 rpm

page 14

iSA Spindle motors with automatic tool changer

iSA 900 W

- rated output 0.9 kW
- speed range 6,000 U/min – 24,000 U/min

auf Seite 10

iSA 1200 W

- rated output 1.2 kW
- speed range 5,000 rpm – 22,000 rpm

page 12

iSA 2200 W

- rated output 2.2 kW
- speed range 5.000 rpm – 20.000 rpm

page 16

Milling spindels

ES 325 HSK 25

- rated output 2.0 kW
- speed range 6,000 rpm – 40,000 rpm

page 18

ES 950 SK 30

- rated output 3.8 kW
- speed range 12,000 rpm – 24,000 rpm

page 20

iFM 1000 ER
iFM 1000 WS

speed range 4,000 rpm – 25,000 rpm

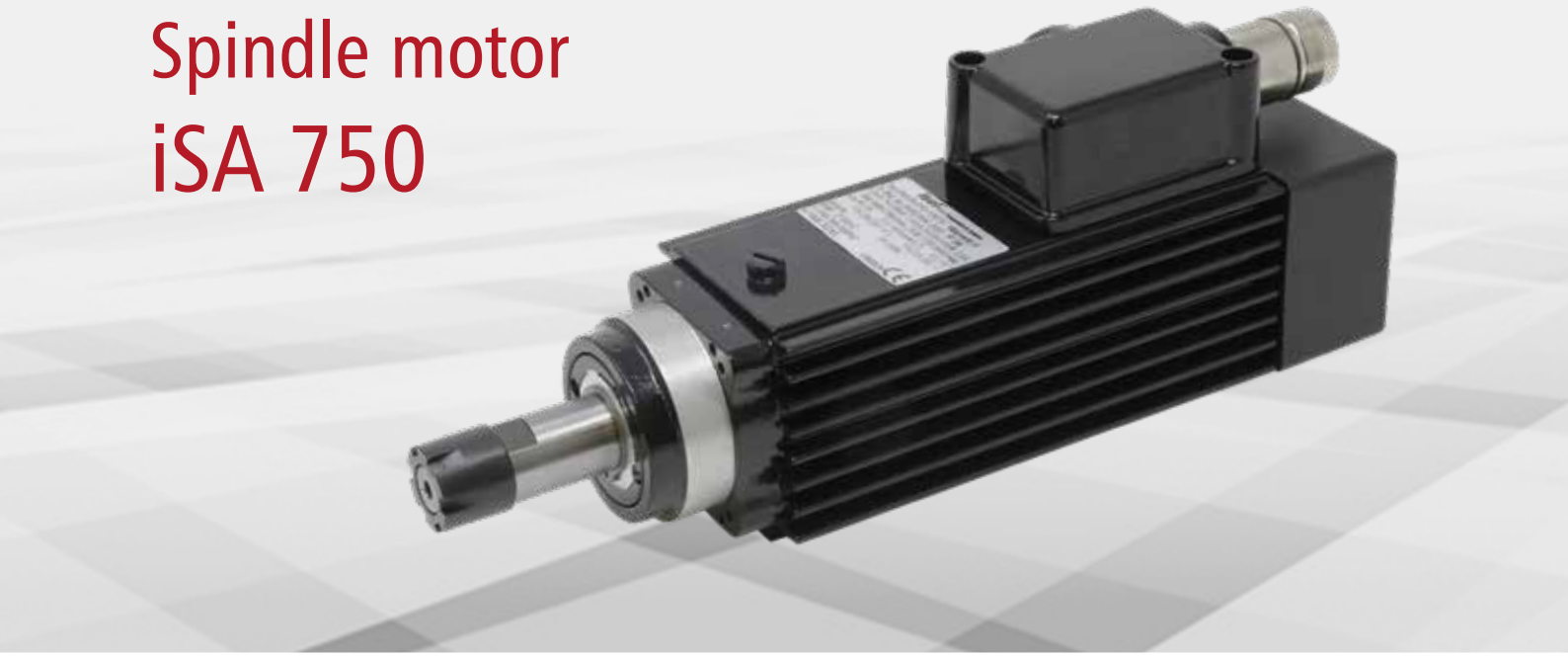
on page 22 and 23

Milling spindles of various manufacturers

After detailed technical examination also spindle motors in the power range 0.5 kW to 6.5 kW from various manufacturers can be integrated.

For more information, please contact your competent sales partner.

Spindle motor iSA 750



iSA 750 | Spindle motor with manual tool changer

- robust 2-pole AC motor (asynchronous motor)
- square shape
- protection class IP54, insulation class F
- M23 plug connection
- A side: aluminium extrusion / B side: cast iron end shield
- motor shaft to take ER 16 collets
- incl. ER 16 collet, Ø 6 mm
- clamping range Ø 1 mm – Ø 10 mm
- intrinsic ventilation B-side
- two precision bearings
- controlled by frequency converter
- fitting holes Ø 5 mm (±0.1) for easy spindle replacement

Technical specification

Torque [Nm] (at rated speed 22,000 rpm)	0.34
Speed range [U/min.]	3,000 – 28,000
Cut-off frequency* [Hz] / Speed [U/min.]	300 / 18,000
Number of poles	2
Rated voltage [V]	220 (star connection)
Rated current [A]	3.4
Power factor (cos φ)	0.79
Rated power [kW] (S6 = 40% Operation)	0.75
Concentricity [mm]	0.01
Weight [kg]	2.6

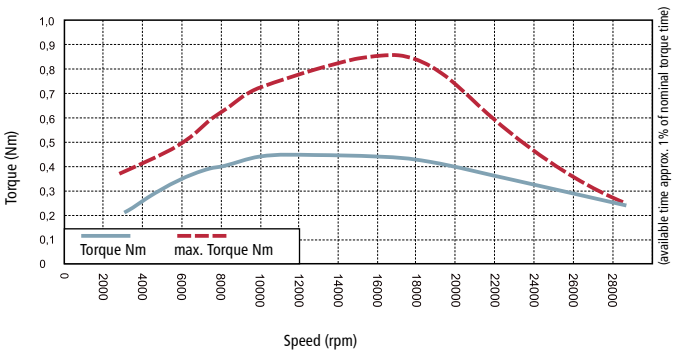
*cut-off frequency = frequency to which the motor effect is designed.

Options

- CoolMin® (internal and external)
- frequency converter SKC 750
- various collets ER 16
- connection cable in different lengths
- suction device
- mounting plates
- sealing air connection

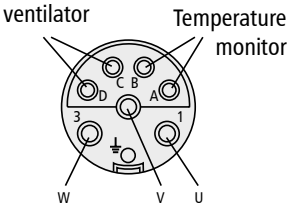
iSA 750 with CoolMin® internal

Torque curves

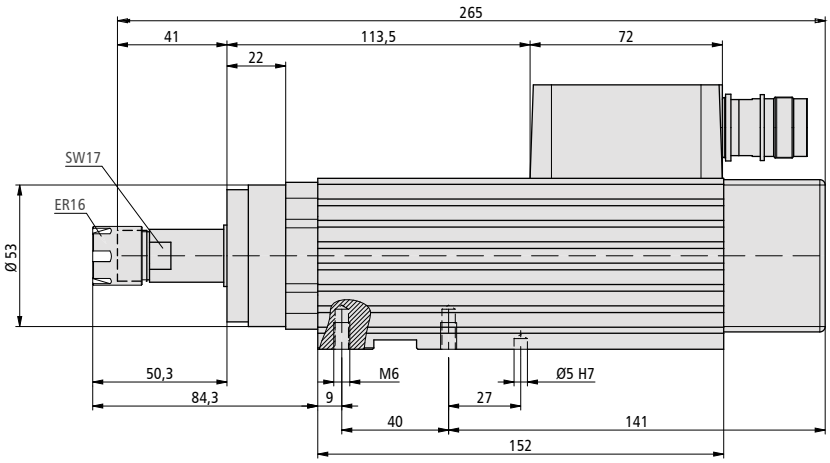


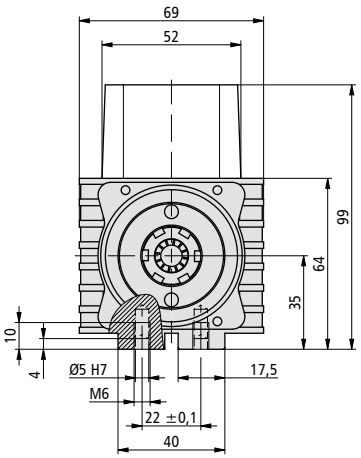
Motor connection

Circular connectors
(7-polig + PE)



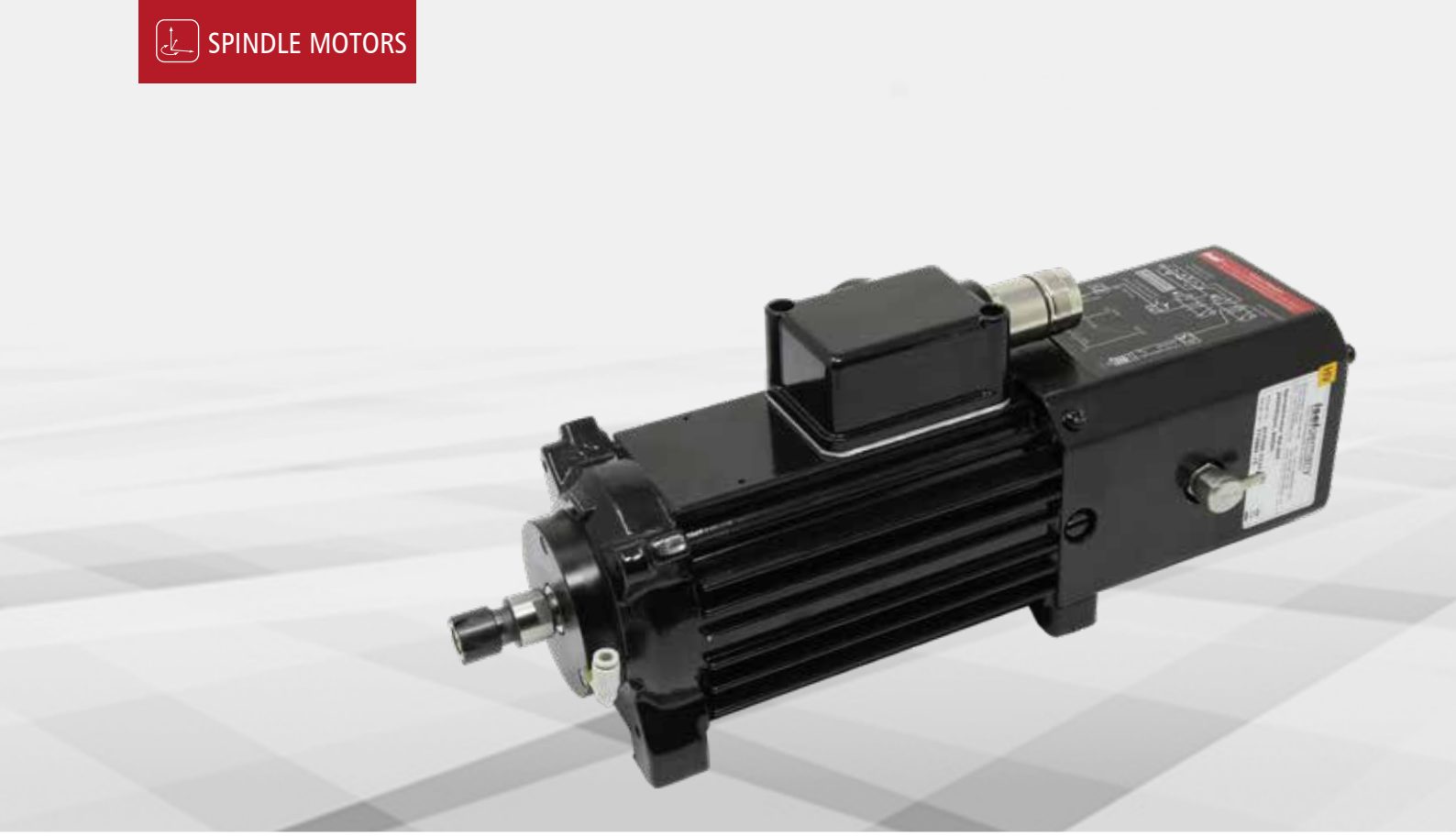
Dimensional drawing

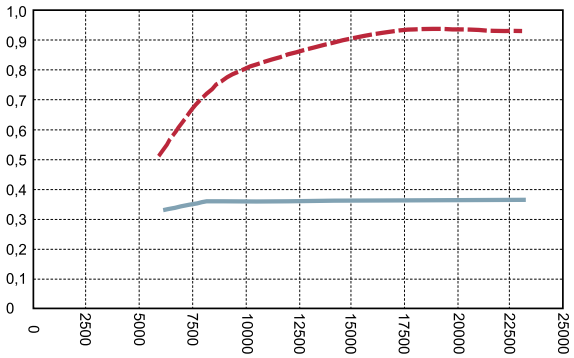


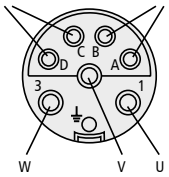


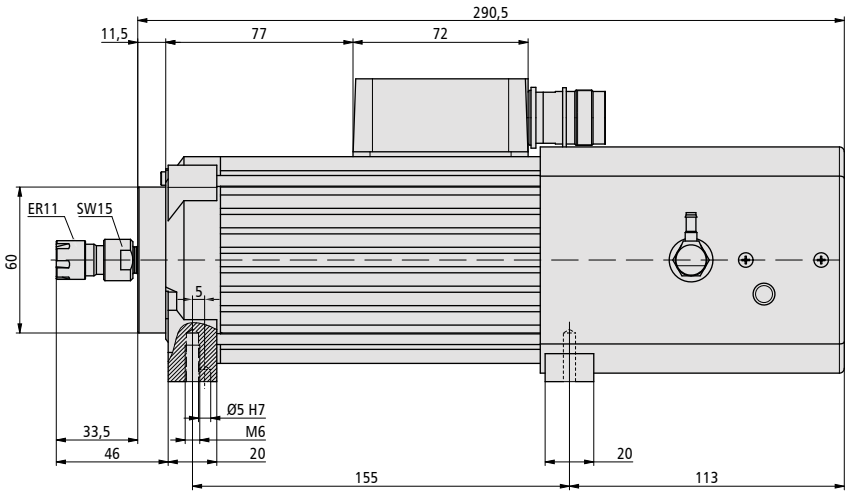
Order data		Part No.
Spindle motor iSA 750	with collet ER 16 (6 mm)	477008 3124
	with converter** and connecting cable (8 m), incl. collet ER 16 (6 mm)	310708 1611
	with CoolMin® (internal), incl. collet ER 16 (6 mm)	477008 5124
	with converter**, connecting cable (8 m) and CoolMin®, incl. collet ER 16 (6 mm)	310707 1631
CoolMin®	external	239011 0119
Frequency converter	SKC 750	311707 6000
Collet set	ER 16 (1,0 / 2,0 / 3,0 / 4,0 / 5,0 / 6,0 / 7,0 / 8,0 / 9,0 / 10,0 mm)	239171 0001
Suction device	for EuroMod / FlatCom (prepared for Ø 38 mm hose)	239012 0000
	for ICP / ICV 4030 (prepared for Ø 21 mm hose, with cold air nozzle)	280211 9001
Suction head	AK 750 for CoolMin® (prepared for Ø 38 mm hose)	239012 0012
Mounting plates isel systems (Z axis)	Mounting plate set on LES 5	675015 9297
	Mounting plate set on LES 6	675015 9298

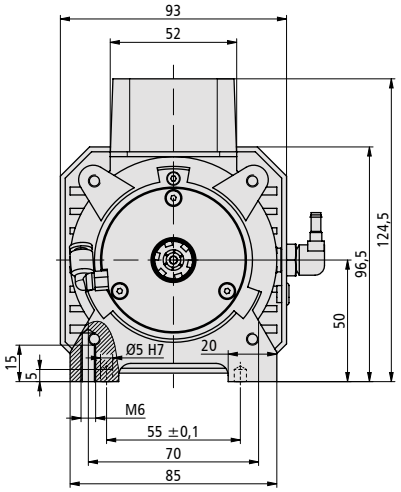
**converter pre-set for spindle




1,0
0,9
0,8
0,7
0,6
0,5
0,4
0,3
0,2
0,1
0
0
2500
5000
7500
10000
12500
15000
17500
20000
22500
25000


C
B
D
A
3
1
W
V
U


290,5
11,5
77
72
ER11
SW15
60
5
Ø5 H7
M6
20
33,5
46
155
20
113


93
52
124,5
96,5
50
15
5
Ø5 H7
20
M6
55 ±0,1
70
85

Spindle motor iSA 1200 W

iSA 1200 W | Spindle motor with automatic tool changer

- robust 2-pole AC motor (asynchronous motor)
- square shape
- protection class IP55, insulation class F
- M23 plug connection
- cast end shield A and B sides
- tool change SK 16 pneumatic (7,5 bar)
- incl. ER 16 collet, Ø 6 mm
- clamping range Ø 3 mm – Ø 10 mm
- intrinsic ventilation B-side
- two precision bearings
- controlled by frequency converter

Technical specification

Torque [Nm] (at rated speed 22,000 rpm)	0.5
Speed range [U/min.]	5,000 – 22,000
Cut-off frequency* [Hz] / Speed [U/min.]	300 / 18,000
Number of poles	2
Rated voltage [V]	230 (star connection)
Rated current [A]	4.5
Power factor ($\cos\varphi$)	0.84
Rated power [kW] (S6 = 40% Operation)	1.2
Concentricity [mm]	0.01
Weight [kg]	7

*cut-off frequency = frequency to which the motor effect is designed.

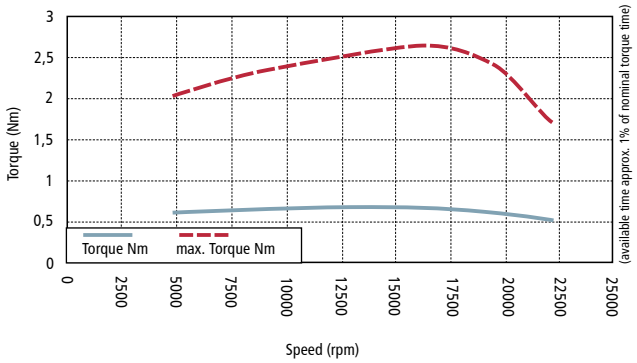
The spindle motor iSA 1200 W is suitable to process light to medium duty work such as Aluminum, wood and plastic.

The light weighted and compact spindle design is perfect for CNC table machines ICV.

Options

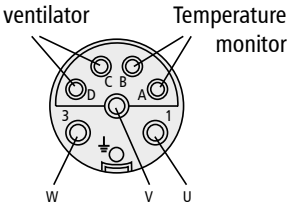
- CoolMin® (external)
- frequency converter SKC 750
- tool changing station
- various collets ER 16
- connection cable in different lengths
- suction device
- mounting plates
- sealing air connection

Torque curves

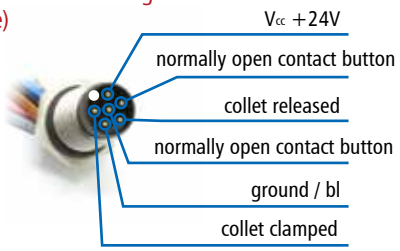


Motor connection

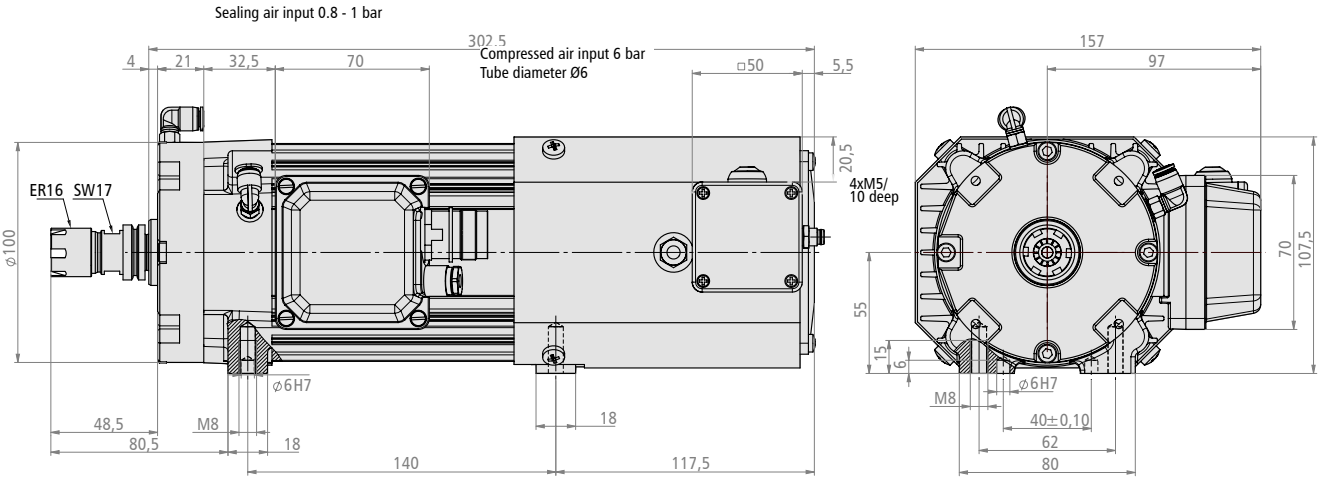
Circular connectors (M23: 7-polig + PE)



Sensor connector tool changer (M8: 6-pole)



Dimensional drawing



Order data		Part No.
Spindle motor iSA 1200 W	with collet ER 16 (6 mm)	477012 3321S
	with converter** and connecting cable (8 m), incl. collet ER 16 (6 mm)	310712 3611S
CoolMin®	external, with articulated hose	239011 0119
Frequency converter	SKC 750	311707 6000
Collet Set	ER 16 (1.0 / 2.0 / 3.0 / 4.0 / 5.0 / 6.0 / 7.0 / 8.0 / 9.0 / 10.0 mm)	239171 0001
Tool change station***	linear SK 16, 4-port	239016 0041
	linear SK 16, 5-port	239016 0051
Tool holder	SK 16 (for collet ER 16)	239116 0001
Suction device****	for automatic tool changers	on request
Suction head	AK 1200 (prepared for Ø 50 mm hose)	239012 SDU6032
Mounting plates isel systems (Z axis)	Mounting plate set on LES 5	675015 9301
	Mounting plate set on LES 6	675015 9302

**converter pre-set for spindle ***special changing stations on request ****not compatible with tool change station at ICP and ICV

Spindle motor iSA 1500

iSA 1500 | Spindle motor with manual tool changer

- robust 2-pole AC motor (asynchronous motor)
- square shape
- protection class IP54, insulation class F
- M23 plug connection
- cast end shield A and B sides
- motor shaft to take ER 20 collets
- incl. ER 20 collet, Ø 6 mm
- clamping range Ø 1 mm – Ø 13 mm
- intrinsic ventilation B-side
- double precision bearing
- controlled by frequency converter

Technical specification

Torque [Nm] (at rated speed 22,000 rpm)	0.72
Speed range [U/min.]	5.000 – 20,000
Cut-off frequency* [Hz] / Speed [U/min.]	300 / 18,000
Number of poles	2
Rated voltage [V]	200 (star connection)
Rated current [A]	7.0
Power factor (cos φ)	0.85
Rated power [kW] (S1 Operation)	1.5
Concentricity [mm]	0.01
Weight [kg]	6.4

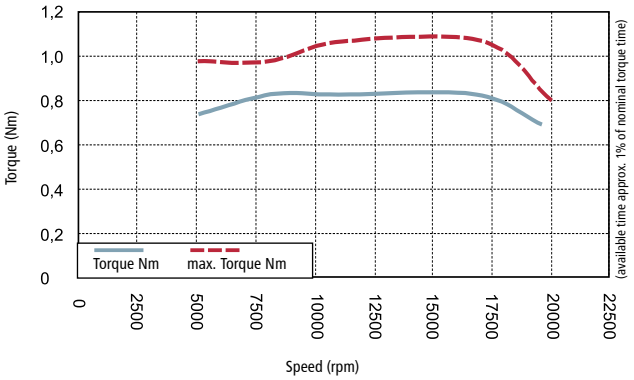
*cut-off frequency = frequency to which the motor effect is designed.

Options

- CoolMin® (internal and external)
- frequency converter SKC 750
- various collets ER 20
- connection cable in different lengths
- suction device
- mounting plates
- sealing air connection

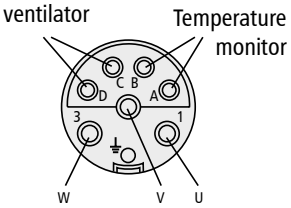
iSA 1500 with CoolMin® internal

Torque curves

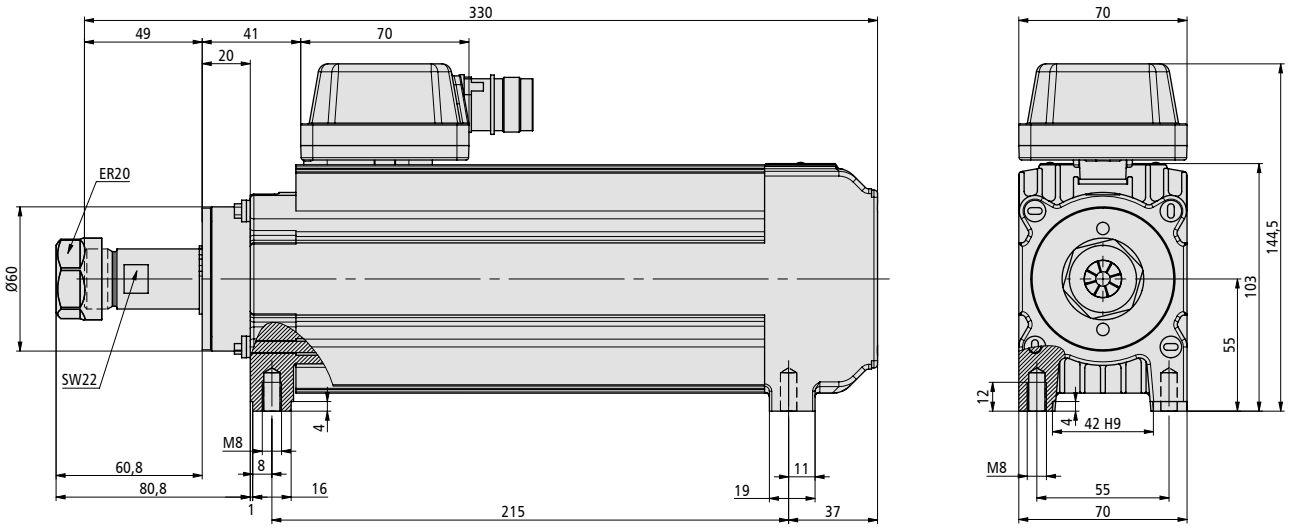


Motor connection

Circular connectors
(7-polig + PE)



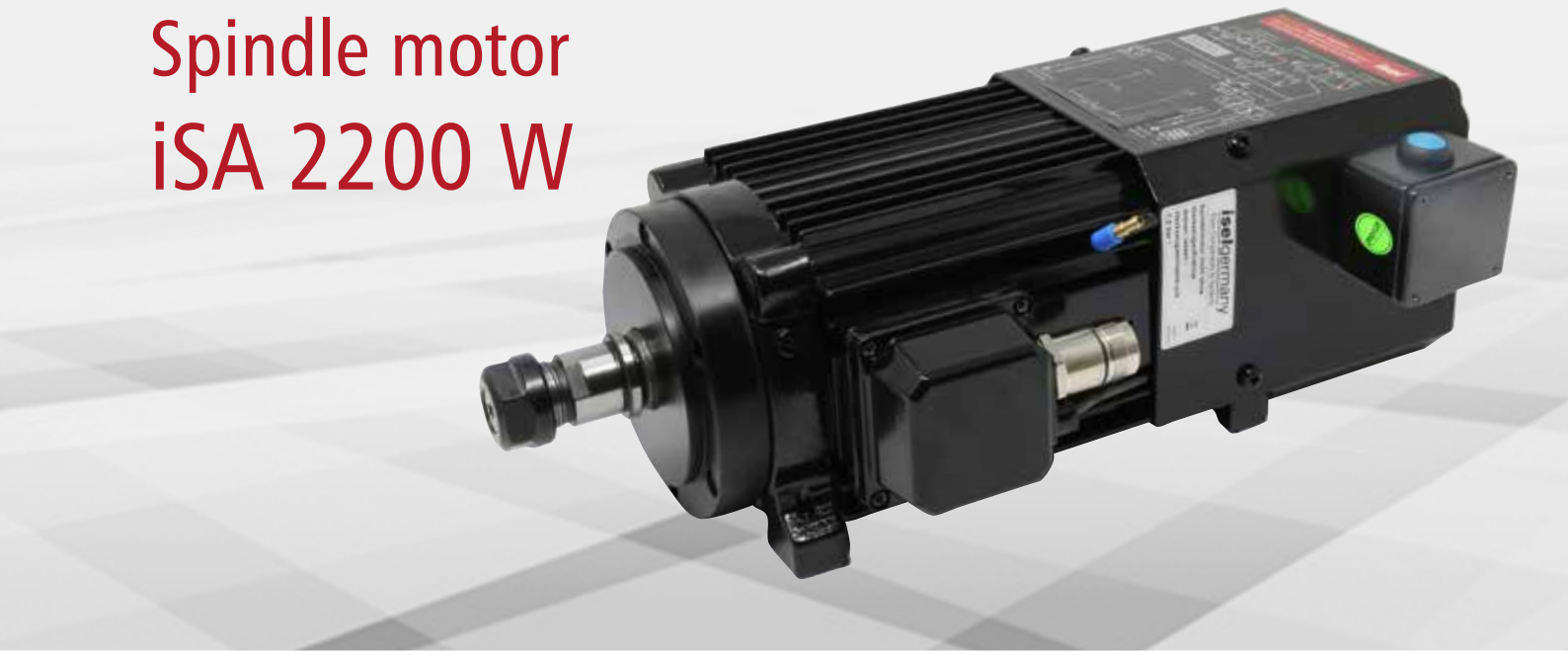
Dimensional drawing



Order data		Part No.
Spindle motor iSA 1500	with collet ER 20 (6 mm)	477510 3120
	with converter** and connecting cable (8 m), incl. collet ER 20 (6 mm)	310610 3614
	with CoolMin® (internal), incl. collet ER 20 (6 mm)	477510 5120
	with converter** and connecting cable (8 m) and CoolMin®, incl. collet ER 20 (6 mm)	310610 3634
CoolMin®	external	239011 0119
Frequency converter	SKC 1500	311715 6000
Collet Set	ER 20 (1.0 / 2.0 / 3.0 / 4.0 / 5.0 / 6.0 / 7.0 / 8.0 / 9.0 / 10.0 / 11.0 / 12.0 / 13.0 mm)	239172 0001
Suction device	prepared for Ø 80 mm hose, with or without CoolMin®	239012 0001
Suction head	AK 1500 for CoolMin® (prepared for Ø 50 mm hose)	239012 SDU0435
Mounting plates isel systems (Z axis)	Mounting plate set on LES 5	675015 9303
	Mounting plate set on LES 6	675015 9304

**converter pre-set for spindle

Spindle motor iSA 2200 W



iSA 2200 W | Spindle motor with automatic tool changer

- robust 2-pole AC motor (asynchronous motor)
- square shape
- protection class IP 55, insulation class F
- M23 plug connection
- cast end shield A and B sides
- tool change SK 20 pneumatic (7,5 bar)
- incl. ER 20 collet, Ø 6 mm
- clamping range Ø 1 mm – Ø 13 mm
- intrinsic ventilation B-side
- two precision bearings
- controlled by frequency converter

Technical specification

Torque [Nm] (at rated speed 22,000 rpm)	1.26
Speed range [U/min.]	5,000 – 20,000
Cut-off frequency* [Hz] / Speed [U/min.]	300 / 18,000
Number of poles	2
Rated voltage [V]	3 x 230 (star connection)
Rated current [A]	7.6
Power factor (cos φ)	0.84
Rated power [kW] (S6 = 40% Operation)	2.2
Concentricity [mm]	0.01
Weight [kg]	14.6

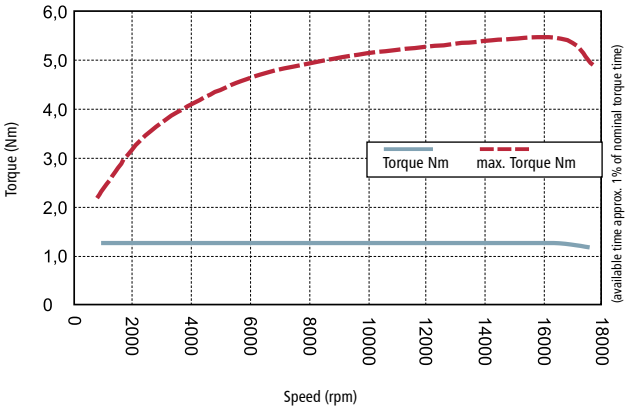
*cut-off frequency = frequency to which the motor effect is designed.

Options

- CoolMin® (external)
- CoolMin® (internal) with internal mold cooling
- frequency converter SKC 1500
- tool changing station
- various collets ER 20
- connection cable in different lengths
- suction device
- mounting plates
- sealing air connection

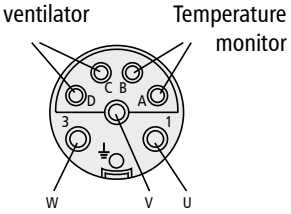
iSA 2200 W with CoolMin® internal

Torque curves

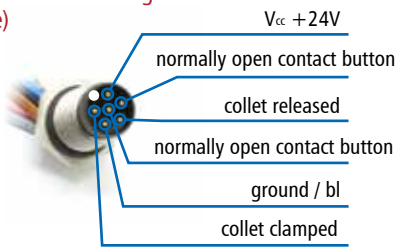


Motor connection

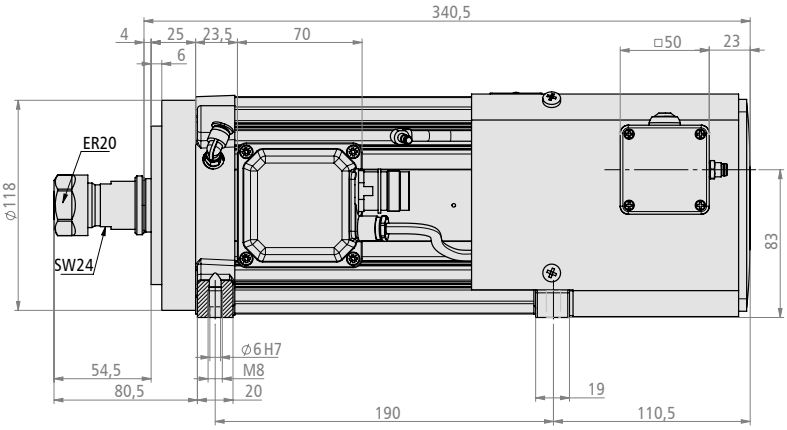
Circular connectors
(M23: 7-polig + PE)

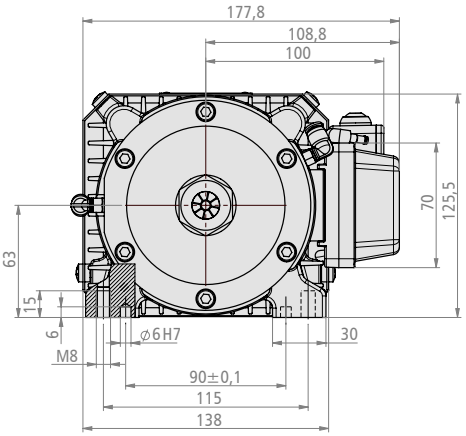


Sensor connector tool changer
(M8: 6-pole)



Dimensional drawing





Order data		Part No.
Spindle motor iSA 2200 W	with collet ER 20 (6 mm)	477022 3319S
	with converter** and connecting cable (8 m), incl. collet ER 20 (6 mm)	310722 3620S
	with CoolMin® (internal), incl. collet ER 20 (6 mm)	477022 5319S
	with converter** and connecting cable (8 m) and CoolMin®, incl. collet ER 20 (6 mm)	310722 3630S
CoolMin®	external	239011 0119
Frequency converter	SKC 1500	311715 6000
Collet Set	ER 20 (1.0 / 2.0 / 3.0 / 4.0 / 5.0 / 6.0 / 7.0 / 8.0 / 9.0 / 10.0 / 11.0 / 12.0 / 13.0 mm)	239172 0001
Tool change station***	linear SK 20, 4-port	239011 0041
	linear SK 20, 8-port	239011 0081
Tool holder	SK 20 (for collet ER 20)	239172 0020
Suction device	prepared for Ø 80 mm hose, for automatic tool changers	239012 0002
	prepared for Ø 80 mm hose, for automatic tool changers, with external tool cooling	239012 0003
Suction head	AK 2200 (prepared for Ø 50 mm hose)	239012 SDU2355
Mounting plates (Z axis)	Mounting plate set on LES 5	675015 9350
	Mounting plate set on LES 6	675015 9352

**converter pre-set for spindle ***special changing stations on request

Milling spindle ES 325 HSK 25

Milling spindle ES 325 HSK 25 with pneumatic tool charger

- automatic tool locking with pneumatic piston
- front ceramic bearing
- rear ceramic bearing
- lifetime lubrication
- water cooled max. speed: 40.000 rpm
- spindle housing aluminium alloyed

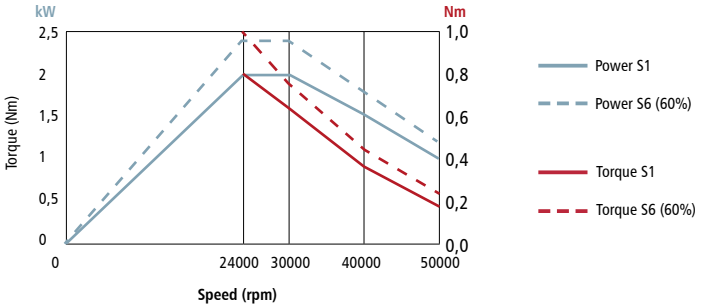
Technical specification

Rated speed [min^{-1}]	40,000
Rated voltage [V]	380
Rated current [A]	4.0
max. rated output [kW]	2.0
Weight [kg]	7.0

Optional

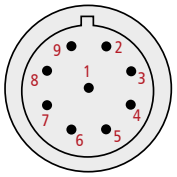
- linear tool changer HSK 25
- clamp for HSK 25 and HSK 32
- tool holders
- CoolMin® (external)
- frequency converter SKC 4000
- mounting plates
- different lengths of connecting cable

Torque curves



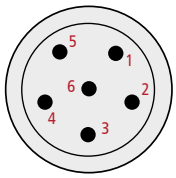
Motor connection

Signals



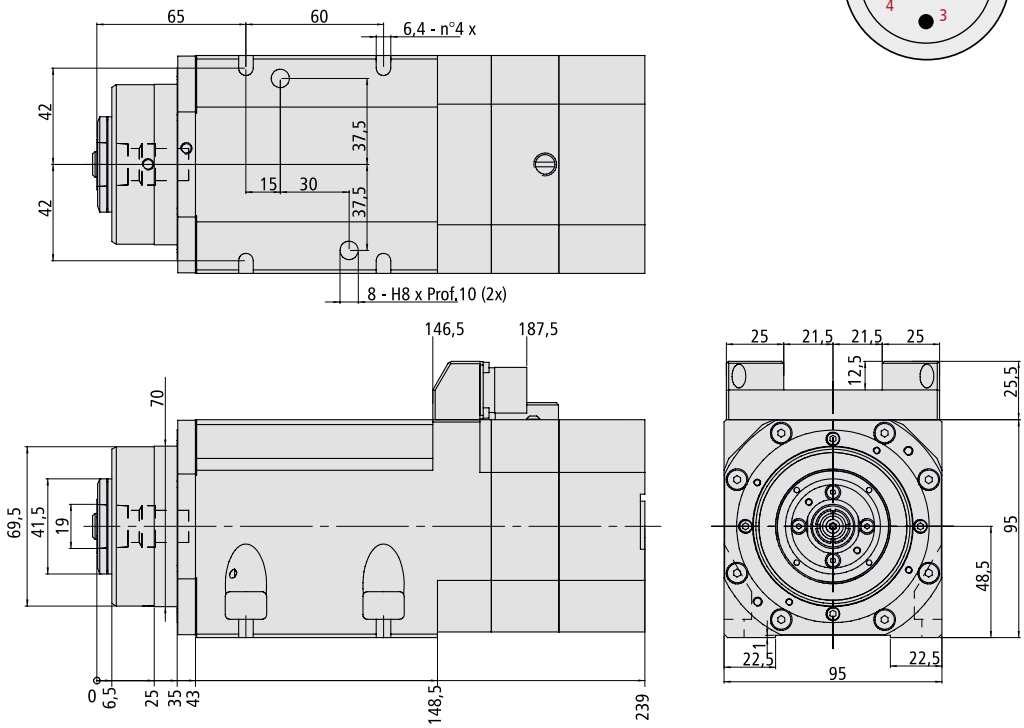
2 +24V DC sensor power supply
3 0 V sensors
4 Output Sensor S1 (tool locked)
5 Output Sensor S2 (toll ejected)
6 Output Sensor S3 (shaft stopped)

Motor



1 Motor V phase
2 Motor U phase
3 Motor W phase
4 PE
5 Thermal Protection
6 Thermal Protection

Dimensioned drawings



Order data		Part No.
Milling spindle ES 325 HSK 25	basic	478015 1340
	with converter**, maintenance unit and connection line 8 m, Collet EX 16, 6 mm, air or water cooled	310815 3511
Frequency converter	SKC 4000	311740 6500
CoolMin®	external	239011 0119
Tool holder	HSK 25	477125
Collets (on page 26)	in Ø 1,0 / 1,5 / 2,0 / 2,5 / 3,0 / 4,0 / 5,0 / 6,0 / 7,0 / 8,0 / 9,0 / 10,0	477125 80XX
Clamps	for holding HSK 25	639100 0043
Tool change station***	linear changer HSK 25, 5-fold	239011 0051
	linear changer HSK 25, 10-fold	239011 0101
Mounting plate	at linear unit LES 5 and LES 21	277028 0001
Cooling unit 16 S	for milling spindle ES 325	492015 2001
Storage rack	for cooling unit 16 s	274507 6300

**converter pre-set for spindle ***Special change stations on request

Milling spindle
ES 950 SK 30

ES 950 SK 30 milling spindle with automatic tool changer

- automatic tool locking with pneumatic piston (release piston)
- front bearing ceramic
- rear bearing ceramic
- bearing lubrication Lubricated for life
- air-cooled max. speed up to 24,000 rpm.
- spindle housing aluminum alloyed

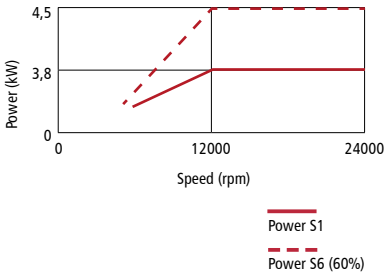
Optional

- Linear changer SK 30
- Retaining clips SK 30
- Tool holders
- CoolMin (extern)
- SKC 4000 frequency inverter
- Mounting plates
- Connection cable in various lengths

Technical specification

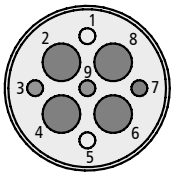
Nominal voltage [V]	380		380		220		220	
Nominal frequency [Hz]	200		400		200		400	
Rated speed [rpm]	12000		24000		12000		24000	
Operating mode	S1 Continuous operation	S6 60%	S1 Continuous operation	S6 60%	S1 Continuous operation	S6 60%	S1 Continuous operation	S6 60%
Rated power [kW]	3,8	4,5	3,8	4,5	3,8	4,5	3,8	4,5
Nominal torque [Nm]	3	3,6	1,5	1,8	3	3,6	1,5	1,8
Rated current [A]	8,5	10,2	8	9,6	14,7	17,7	14	16,8
Weight [kg]	22,5							

Power curve



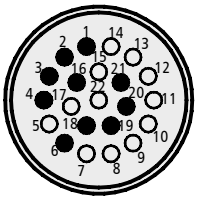
Motor connection

Power connector



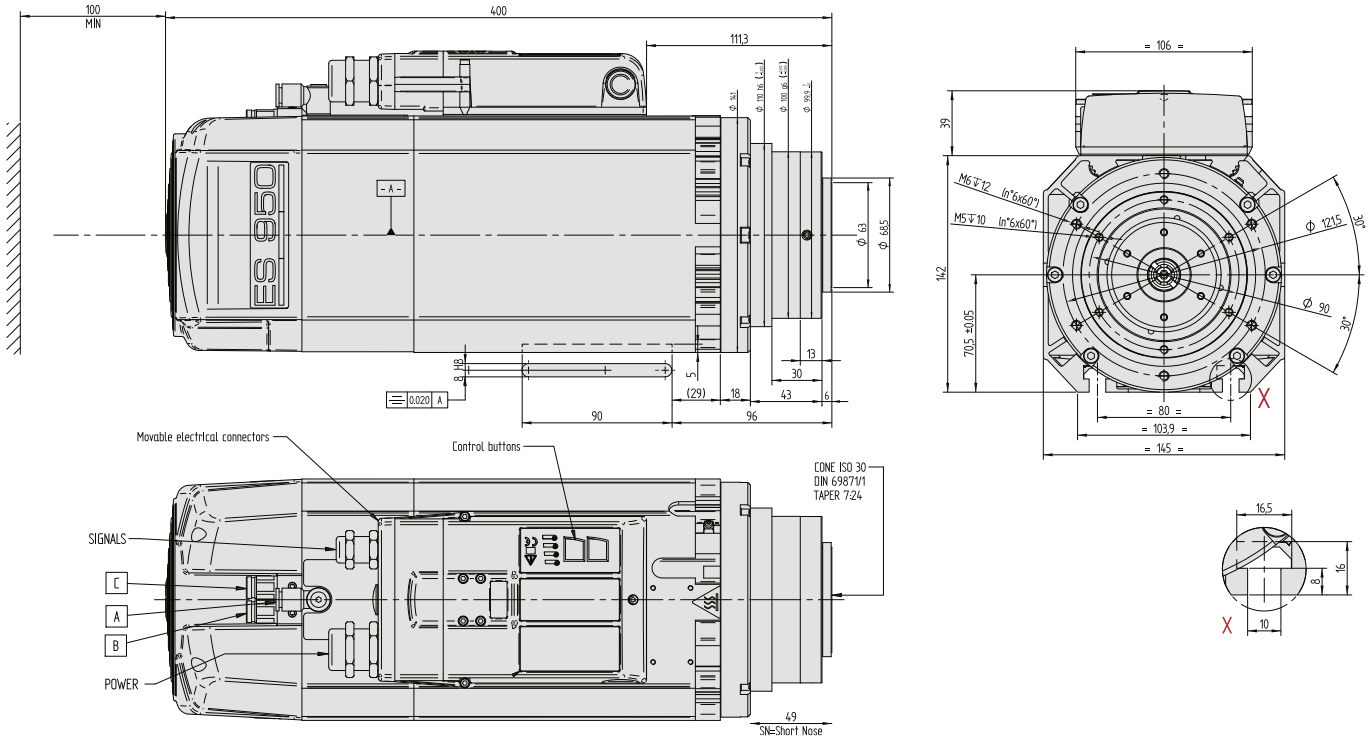
1 Not used
2 GROUND in common with PIN7
3 +24V DC Electric fan (1A max)
4 U Motor Phase
5 Not used
6 V Motor Phase
7 Shield power cable in common with PIN2
8 W Motor Phase
9 0V DC Electric fan

Signals connector



1 OUTPUT S2 (tool unlocked)
2 OUTPUT S1+S4+S5 (tool locked)
3 OUTPUT S3 (spindle rotation)
4 +24V DC sensors (1A max)
6 0V DC sensors
16 Shield
18 Electric fan
19 ELECTRONICS WORKING
20 OUTPUT no tool
21 Motor thermal alarm (0/24V DC)

Dimensioned drawings



Order data		Part No.
Milling spindle ES 950 SK 30		445000 1919
Milling spindle ES 950 SK 30 with inverter	with connecting cable 10 m, collet ER20, 6 mm	310815 35140
SKC 4000 frequency inverter		311740 6500F
CoolMin	extern	239011 0119
Tool holder SK 30		445000 1996
Collets	in Ø 3,0 / 4,0 / 5,0 / 6,0 / 8,0 / 10,0 / 12,0 / 16,0 / 20,0	445000 19xx
Linear changer	4-fold	239011 0045
	5-fold	239011 0055
	10-fold	239011 0105
Clamping claw SK 30		639100 4559

Milling motor iFM 1000 ER

iFM 1000 ER | Milling motor

- extremely quiet
- spindle lock
- external portal interface
- LED indication for overload
- Duo-In: speed can be adjusted manually or via the infinitely variable to suit any application application
- quick and easy connection in the portal by Rapidfix cable
- highest concentricity due to the filigree coordination of all components
- digital electronics with soft start, constant speed under load, idle speed reduction and overload protection

Technical data

Nominal power consumption [W]	1,000
Universal motor [V / Hz]	230 / 50
Nominal idling speed [rpm]	4,000 – 25,000
Portal connection	M8 / 4-pol.
Power supply in PV operation [V]	7 - 56
Portal control [V]	0 - 10
Clamping collar / collet [mm]	43 / 8
Dimensions (L x W x H) [mm]	254 x 79 x 73
Sound pressure level [dB (A)]	71
Weight [kg]	1.65

Areas of application:

- model making, mould making, advertising technology, engraving, jewellery, electronics, stonemasonry
- ideally suited for portal milling machines, cutting tables, grinding devices and flexible shafts
- for wood, metal, plastics, foam, polystyrene, stone

Ordering data		Part No.
Milling motor iFM 1000 ER	incl. collet (OZ 8 mm), open-end wrench and connection cable (0.75 + 4 m)	420003 1000
Union nut	OZ	420003 1010
Collets	OZ 3 mm	420003 1011
	OZ 4 mm	420003 1012
	OZ 6 mm	420003 1013
	OZ 8 mm	420003 1017
	OZ 3.175 mm (1/8“)	420003 1014
	OZ 6.35 mm (1/4“)	420003 1015
PV control cable	M8 / 4-pol, 5 m	420003 1016
Suction head	prepared for hose Ø 50 mm	239012 SDU8950
Clamping block	for LES 5	on request

Milling motor iFM 1000 WS

iFM 1000 WS | Fräsmotor

- extremely quiet
- tool-less quick-clamping device
- external portal interface
- LED indication for overload
- Duo-In: speed can be adjusted manually or via the infinitely variable to suit any application application
- quick and easy connection in the portal by Rapidfix cable
- highest concentricity due to the filigree coordination of all components
- spindle with double bearings to absorb axial forces
- digital electronics with soft start, constant speed under load, idle speed reduction and overload protection

Technische Daten

Nominal power consumption [W]	1,000
Universal motor [V / Hz]	230 / 50 w
Nominal idling speed [rpm]	4,000 – 25,000
Portal connection	M8 / 4-pol.
Power supply in PV operation [V]	7 - 56
Portal control [V]	0 - 10
Portal mounting (holes)	6 x M6
Clamping collar / collet [mm]	43 / 8
Dimensions (L x W x H) [mm]	280 x 92 x 85
Tool holder [mm]	8
Sound pressure level [dB (A)]	71
Weight [kg]	2.8

Areas of application:

- model making, mould making, advertising technology, engraving, jewellery, electronics, stonemasonry
- ideally suited for portal milling machines, cutting tables, grinding devices and flexible shafts
- for wood, metal, plastics, foam, polystyrene, stone

Ordering data		Part No.
Milling motor iFM 1000 WS	incl. connection cable (0.75 + 4 m)	420003 1001
Adapter sleeve (ground)	3 mm	420003 1018
	1/8" (3.175 mm)	420003 1019
	4 mm	420003 1020
	6 mm	420003 1021
Collet adapter	OZ incl. union nut OZ*	420003 1022
	ER 16 incl. union nut ER 16*	420003 1023
PV-Steuerkabel	M8 / 4-pol, 5 m	420003 1016
Suction head	prepared for hose Ø 50 mm	239012 SDU9459
Clamping block	for LES 5	on request

*n[max] = 16,000 1/min

Linear tool change station
SK 16, SK 20 and SK 30

Merkmale

- simple, functional tool changer for SK 16, SK 20 and SK 30
- pneumatic rotary cylinder and end position monitoring for safe changing
- control via 5/2-way valve with integration in the safety circuit
- low-maintenance, stainless-steel design (powder-coated aluminium)
- variable positioning on the machine bench

Tool holders and max. shank diameter:
SK 16 Ø10 mm SK 20 Ø13 mm SK 30 Ø20 mm

Dimensions linear changer	SK 16 WxDxH [mm]	SK 20 WxDxH [mm]	SK 30 WxDxH [mm]
4x	–	500 x 224 x 253	869,5 x 240 x 320
8x	–	900 x 224 x 253	–
5x	451 x 178 x 208	985 x 224 x 302	1055,5 x 240 x 320
10x	–	1825 x 224 x 302	–

Order data			Part No.
Linear tool change station	SK 16	4x (grid 72 mm), with hood and pneumatics / for EuroMod, FlatCom, erh. Portal, iSA 1200 W	239016 0041
		5x (grid 72 mm), with hood and pneumatics / for EuroMod, FlatCom, erh. Portal, iSA 1200 W	239016 0051
	SK 20	4x (grid 100 mm), with hood and pneumatics / for EuroMod, FlatCom, erh. Portal, iSA 2200 W	239011 0041
		8x (grid 100 mm), with hood and pneumatics / for FlatCom XL, iSA 2200 W	239011 0081
		5x (grid 170 mm), with hood and pneumatics / for FlatCom XL, iSA 2200 W	239011 0050
		10x (grid 170 mm), with hood and pneumatics / for FlatCom XL, iSA 2200 W	239011 0100
	SK 30	4x, with hood and pneumatics / for FlatCom XL, iSA 4000 (increased portal required)	239011 0045
		5x, with hood and pneumatics / for FlatCom XL, iSA 4000 (increased portal required)	239011 0055
Tool holder	SK 16	for collet type ER 16	239116 0001
	SK 20	for collet type ER 20	239172 0020
	SK 20-C	for collet type ER 20, version for internal cooling	239172 0021
	SK 30	for collet type ER 32	239131

Frequency converter **SKC-Serie**

for iSA motors

Features

- pulse width modulated devices with safety technology, three performance classes, compact design
- STO input (safe torque cut-off, in a case of failure the motor provides no torque)
- input voltage single-phase 230 VAC (SKC 750/1500) / three-phase 400VAC (SKC 4000)
- high load capacity 150 % overload for 60 sec.
- three-phase, vector-controlled control voltage, frequency 0 up to 1500 Hz
- fast deceleration of the spindle due to integrated brake resistor in the base
- disconnect able the EMC filter
- programmable inputs and outputs, relay outputs
- easy-to-use control unit to parameterize the spindle
- 95 operating and display parameters such as energy reduction of the spindle at idle run
- protection IP20
- type of control: PLC; 0 ... 10V; 0 ... 20 mA; with control panel; CAN-Bus (additional module required)
- licence CE; C-Tick; UL

connection lead
various lengths as accessories

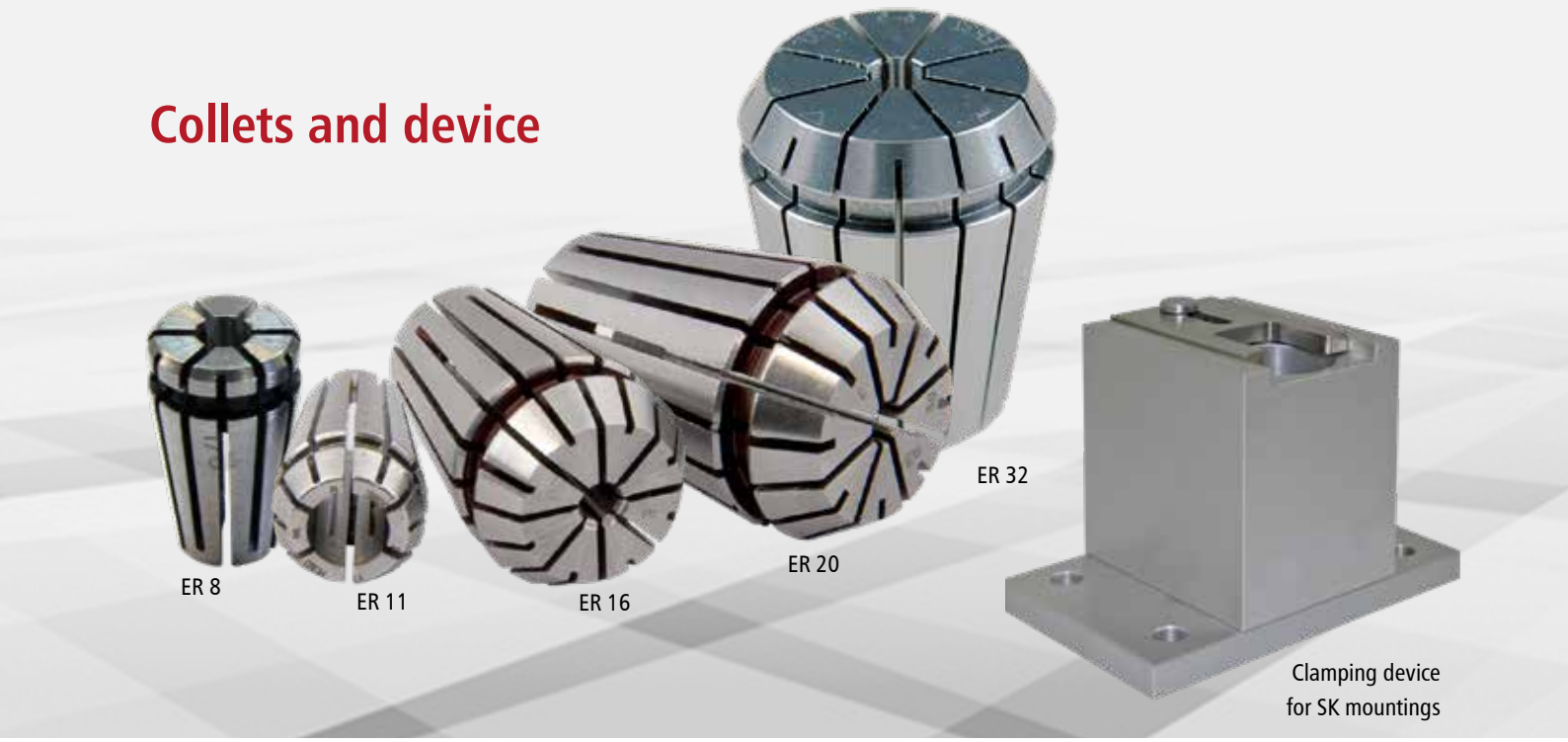
- 8-wire
- drag chain compatible
- external braiding and separately shielded pairs
- pre-fabricated

Motor side - M23 plug
Converter side - wire end bushings
Part No.: **392306 0300** (3 m)
Part No.: **392306 0500** (5 m)
Part No.: **392306 0800** (8 m)

Motor side - direct connection
Converter side - wire end bushings
Part No.: **392301 0300** (3 m)
Part No.: **392301 0500** (5 m)
Part No.: **392301 0800** (8 m)

Order data		Part No.
SKC 750	for spindle motors iSA 750 and iSA 1200W	311707 6000
SKC 1500	for spindle motors iSA 750, iSA 1500 and iSA 2200W	311715 6000
SKC 4000	for spindle motor ES 325 HSK 25	311740 6500

Collets and device



Collet sets

Type	for spindle motor	Clamping range [mm]	Part No.
ER 11*	iSA 900, HFS 800	1,0 - 7,0	239170 0001
ER 16**	iSA 750 / 1200, HFS 1500	1,0 - 10,0	239171 0001
ER 20**	iSA 1500 / 2200, HFS 2200	2,0 - 13,0	239172 0001
ER 32**	iSA 4000	3,0 - 20,0	239130 0000

Clamping device for SK holders

- Mounting device for SK20 tool holders
- Simple and safe clamping due to fork clamping sliders
- Mounting and dismounting of cutting tools
- Dimensions approx. 120 x 80 x 90 mm (WxDxH)

Item no.: 445000 2132

Collet ER 8*

HFS 300C

Ø [mm]	Part No.
3,0	420005 0003
4,0	420005 0004
5,0	420005 0005

Collet EX 16**

for ES 325 HSK 25

Ø [mm]	Part No.
1,0	477125 8010
1,5	477125 8015
2,0	477125 8020
2,5	477125 8025
3,0	477125 8030
4,0	477125 8040
5,0	477125 8050
6,0	477125 8060
7,0	477125 8070
8,0	477125 8080
9,0	477125 8090
10,0	477125 8100

Collet ER 16**

for iSA 750 / 1200, HFS 1500

Ø [mm]	Part No.
1,0	239171 1000
2,0	239171 2000
3,0	239171 3000
4,0	239171 4000
5,0	239171 5000
6,0	239171 6000
7,0	239171 7000
8,0	239171 8000
9,0	239171 9000
10,0	239171 0100

Collet ER 11*

for iSA 900, HFS 800

Ø [mm]	Part No.
1,0	239170 1000
1,5	239170 1500
2,0	239170 2000
2,5	239170 2500
3,0	239170 3000
3,5	239170 3500
4,0	239170 4000
4,5	239170 4500
5,0	239170 5000
5,5	239170 5500
6,0	239170 6000
6,5	239170 6500
7,0	239170 7000

Collet ER 20**

for iSA 1500 / 2200, HFS 2200

Ø [mm]	Part No.
1,0	239172 1000
2,0	239172 2000
3,0	239172 3000
4,0	239172 4000
5,0	239172 5000
6,0	239172 6000
7,0	239172 7000
8,0	239172 8000
10,0	239172 0100
11,0	239172 0110
12,0	239172 0120
13,0	239172 0130

Collet ER 32**

for iSA 4000

Ø [mm]	Part No.
3,0	239130 3000
4,0	239130 4000
5,0	239130 5000
6,0	239130 6000
7,0	239130 7000
8,0	239130 8000
9,0	239130 9000
10,0	239130 0100
11,0	239130 0110
12,0	239130 0120
13,0	239130 0130
14,0	239130 0140
15,0	239130 0150
16,0	239130 0160
17,0	239130 0170
18,0	239130 0180
19,0	239130 0190
20,0	239130 0200

* These collets are able to accurately clamp even shanks reduced by Ø 0.5 mm.
** These collets are also able to accurately clamp shanks reduced by Ø 1.0 mm.

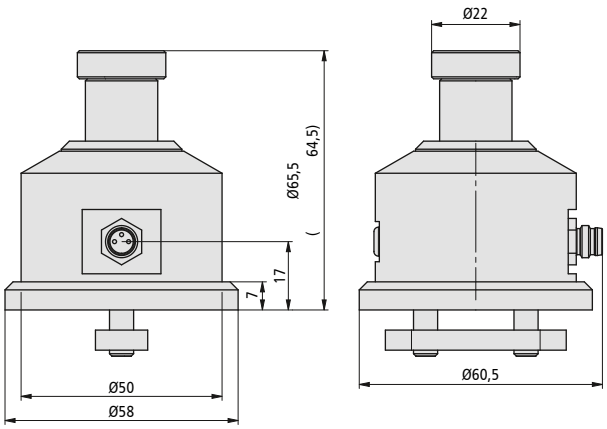
Cutter box with milling cutters and Length measuring pushbutton

Cutter set

LMT 2

Length measuring pushbutton / Z zero point pushbutton

The pushbutton is used for the measurement of tool lengths by also offering an LED as a display for the operating status as well as a cable connection through an M8 connector. If used in connection with a magnetic plate, the pushbutton can also be used as a Z zero point pushbutton. This function is possible with the proNC software.

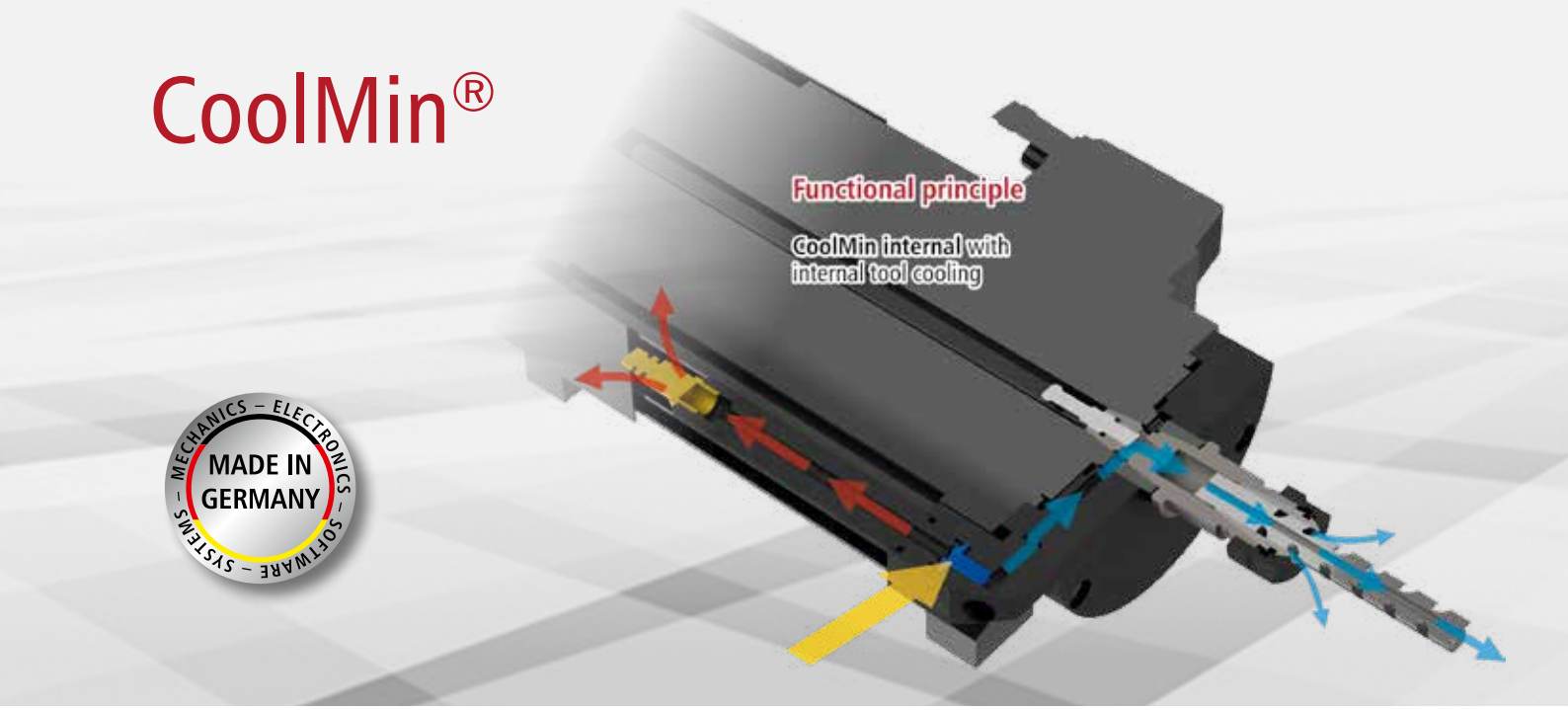


Cutter Box with milling cutters

- Aluminum single flute end mill
- solid carbide, 6 pieces

Order data		Part No.
Cutter set small	1,5 / 2 / 3 / 4 / 5 / 6 mm	239200 0003
Length measuring pushbutton LMT 2		239099 0015

CoolMin®



MADE IN GERMANY – MECHANICS – ELECTRONICS – SOFTWARE – SYSTEMS –

Air pressure
Warm air (max. 70° C)
Cold air (max. -20° C)

Tool and material cooling

Dry cutting is today the first choice for many machining tasks.

Hitherto, materials, tool wear and surface finish have often necessitated cooling with appropriate coolants / greases. This always means moisture. Even minimal moisture spray cooling causes unwanted effects such as the build-up of dirt and the adhesion of swarf to the cutting tool or to the working surface and can lead to the deterioration of the material surface structure, depending on the material being machined.

Our patented cooling method ensures adequate tool and surface cooling and reduces such effects to negligible levels.

This keeps the swarf dry and, depending on the material, easy to remove by either blowing or vacuuming.

Surfaces are therefore protected and, as a result of direct tool cooling, tool life is significantly increased (also suitable for tools with integrated cooling).

The main component of our cooling method is a cold air nozzle, which operates on the eddy current principle and separates warm air from cold.

The system is powered by air pressure alone (6 to 10 bar).

1 Spindle motor
2 Temperature controller
3 Hot air exhaust
4 Vortex nozzle with cold air exhaust
5 Compressed air feed
6 Cold air blower in synthetic material
7 Tool holder for internal cooling
8 Milling cutter for internal cooling

Functional principle

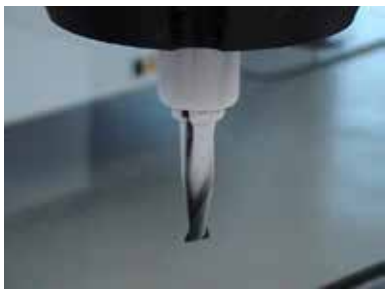
1 Compressed air feed
2 Flexible mating hose
3 Spindle motor
4 Temperature controller
5 Hot air exhaust
6 Vortex nozzle with cold air exhaust
7 Cold air supply in synthetic material
8 Collet

CoolMin® external
with mating hose

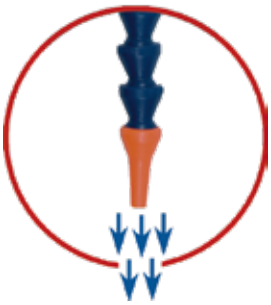
CoolMin® internal
with tool cooling system

Technical specification

Compressed air feed	6 - 10 bar
Cold air exhaust	up to max. -25°C
Hot air exhaust	up to max. 70°C
Air consumption	approx. 150 l/min.



Tool, cooled by CoolMin®
internal



Optimum
cold air flow
(up to -25°C)
for tool cooling and
chip evacuation

Order data		Part No.
CoolMin® internal		see individual motors
CoolMin® external	incl. servicing kit and electrically-powered valve	239011 0117

mobile extraction systems

iAG 350

- special filter technology for dry, sticky dust and dust that tends to form clumps
- easy disposal of the collected dust thanks to the paper filter
- equipped with pre-separator, paper filter, cotton filter and dust class M filter cartridge
- three suction turbines with 230 volt power supply

Areas of application

- single-user extraction at machine and manual workstations
- cleaning work on machines, workshops and in production halls
- for sporadic use (alternating current version)

iAG 720

- low operating costs due to cleanable dust class M permanent filter cartridge
- mobility combined with high extraction performance
- tiltable filter housing for easy dust disposal
- suitable for almost all types of dust
- manual brush cleaning
- cleanable permanent filter cartridge
- special versions with different filter cartridges
- exhaust air connection (optional)
- special voltages (optional)
- floor cleaning and machine cleaning set possible

Areas of application

- single workstation extraction at machine and manual workstations
- free-flowing dusts (non-carcinogenic)
- dry dusts / chips
- dusts that are hazardous to health
- high chip/dust volumes

ME 1500

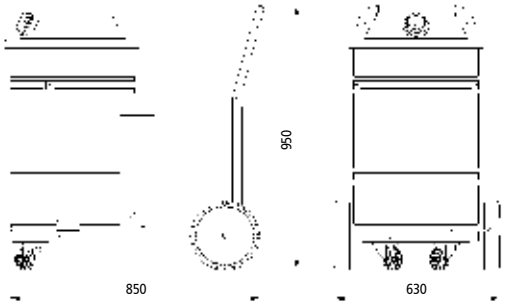
- suitable for continuous operation
- ErP-2015 compliant fan with IE3 motor, 5m mains cable
- ON/OFF motor protection switch
- 1x filter cartridge, category M according to IFA, polyester material
- rotary crank for manual filter cleaning
- monitoring of the minimum air volume flow via differential pressure switch
- powder-coated housing
- handle and 4x wheels to move the dust extractor if necessary
- large dust collection container (190 liters) with inspection window
- lifting/lowering mechanism for user-friendly emptying of the dust collection container
- suction nozzle Ø140mm.

Optional: modules and accessories

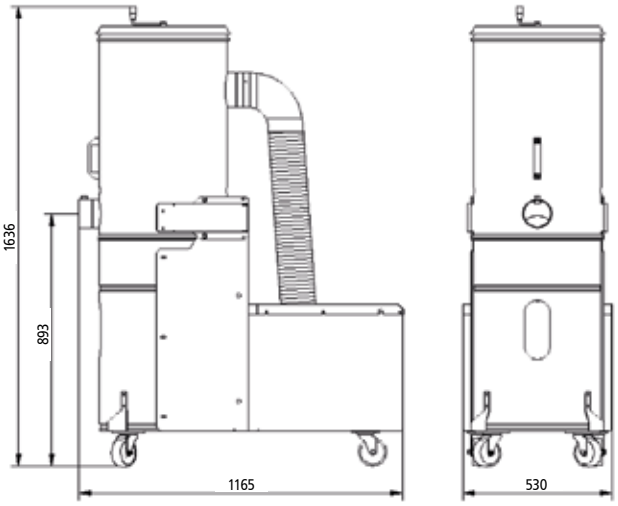
- downstream: Silencer
- downstream: H-13 filter
- filter cartridge in antistatic and/or PTFE version
- electrical components for ON/OFF by main machine
- frequency converter
- ATEX-compliant design for installation in AtEx zone 22
- type examination for wood dust
- sheet steel and spiral ducts

Dimensioned drawings

iAG 350



iAG 720



Technical and ordering data

	iAG 350	iAG 720	ME 1500
Voltage (V)	230	230	400
Motor (kW)	3 x 1,0	1,3	2,2
Max. negative pressure (Pa)	22.000	2.800	-
Max. airflow (m3/h)	350	720	1500
Filter surface (m2)	3	3,5	9
Number of filter elements	1	1	1
Filter material	„M"-classified		
Filter cleaning	manual brush cleaning		Manual by means of rotary crank
Weight (kg)	41	120	160
Intake diameter (mm)	50	100	140
Dust collection bin (l)	70	100	190
Dimensions L x W x H (mm)	630 x 660 x 950	530 x 1165 x 1636	780 x 1160 x 1580
Scope of delivery	incl. hose 50 mm (L = 5 m) and mounting clamps		-
Part no.	239012 0036	239012 0030	445000 2193

Accessories

Hose	Ø 80 mm, L = 5 m Part no.: 639012 0004		
Mounting clamp	up to 170 mm, Part no.: 639012 0008		
Reduction	–	(Ø 100 / 80 mm) Part no.: 639012 0006	

Dust extraction devices
for iSA motors

Extraction device and extraction head

The isel dust and chip extraction units are accessory components for milling spindles from isel Germany. They are used for the extraction of light dusts and chips during dry machining.

Order data	for spindle motor		Part No.
Extraction device	iSA 750	prepared for hose 38 mm, manual opening	239012 0000
	iSA 1200 W		on request
	iSA 1500	prepared for hose 80 mm, manual opening	239012 0001
	iSA 2200 W	prepared for hose 80 mm, automatic opening	239012 0002
		with external CoolMin, prepared for hose 80 mm, manual opening	239012 0003
	ES 325 HSK 25	prepared for hose 80 mm, automatic opening	239012 0016
Extraction head	iSA 750	with external CoolMin, prepared for hose Ø 50 mm, manual opening	239012 0012
	iSA 1200 W	prepared for hose Ø 50 mm, manual opening	239012 SDU6032
	iSA 1500	with external CoolMin, prepared for hose Ø 50 mm, manual opening	239012 SDU0435
	iSA 2200 W	prepared for hose Ø 50 mm, manual opening	239012 SDU2355
	iFM 1000 ER	prepared for hose Ø 50 mm, manual opening	239012 SDU8950
	iFM 1000 WS	prepared for hose Ø 50 mm, manual opening	239012 SDU9459

Minimum volume coolant misting system

The minimum volume coolant misting system works according to the principle „less is more“. A cooling lubricant-air mixture is used, which prevents the generation of frictional heat through optimum lubrication. The remaining heat is dissipated via the tool and the chip. The cooling lubricant must be metered and directed to the tool in a process-safe manner. This requires a high-precision nozzle technology that enables the application of minimal quantities of lubricant.
The minimum volume coolant misting system reduces lubricant consumption to an absolute minimum while keeping environmental impact to a minimum.

Features

- aluminium pressure vessel
- with 1 or 2 adjustable nozzles, includes 1 liter of spray oil
- liquid level control
- valve unit with solenoid valves
- precision coaxial spray head
- ball joint extension
- nozzle connection package with fittings for medium and spray air
- pressure reducer to adjust the container pressure

Advantages

- Increase in productivity
- Improvement of tool life
- clean workpieces with better surfaces
- environmentally friendly technology
- lower storage costs for media
- lower cleaning costs for machines and workplaces

Application areas

- Drilling
- Milling
- Engraving
- High speed machining
- Deep hole drilling

Order data		Part No.
Minimum volume coolant misting system	with one flexible nozzle, includes 1 l spray oil	429116 1000
	with two flexible nozzle, includes 1 l spray oil	429116 2000

Our customers and the projects we realize for them are as diverse as our services. We present a small selection of our references here:

Branches of the company isel

With branches in China, Hungary, and the USA as well as numerous partners in Germany, Europe and worldwide, we are close by at any time.

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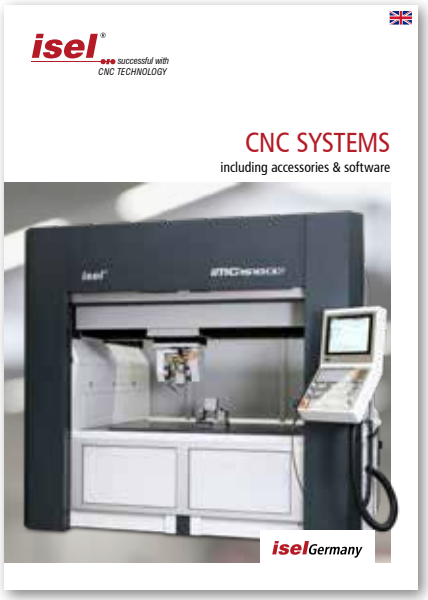

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