



isel[®]
successful with
CNC TECHNOLOGY

SPINDLE MOTORS

incl. accessories



iselGermany

isel[®]

••• *successful with*
CNC TECHNOLOGY



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.

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isa spindle motors

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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 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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Sales, order processing and head office

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 ($\cos \varphi$) | 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.

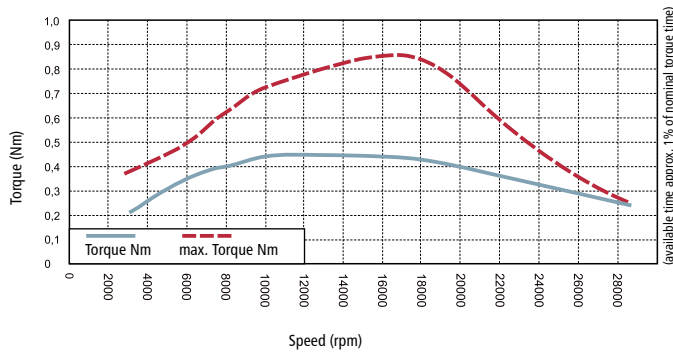
Options

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

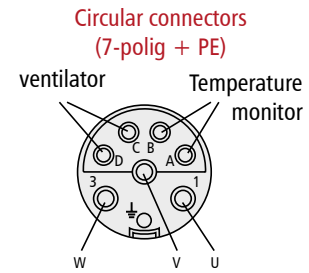


iSA 750
with CoolMin® internal

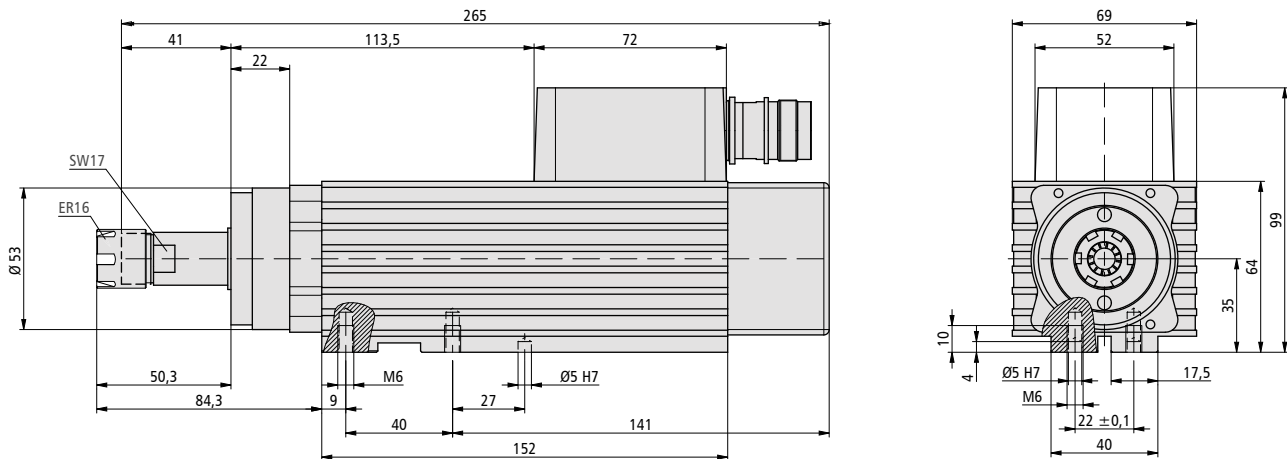
Torque curves



Motor connection



Dimensional drawing

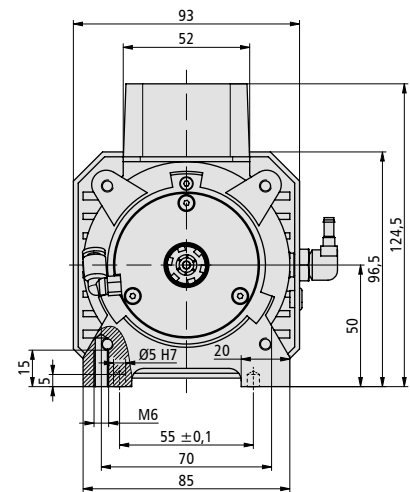
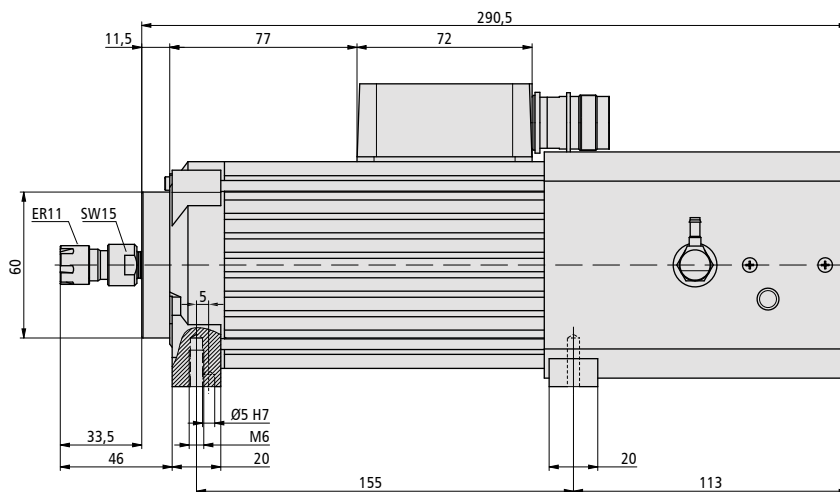
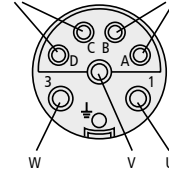
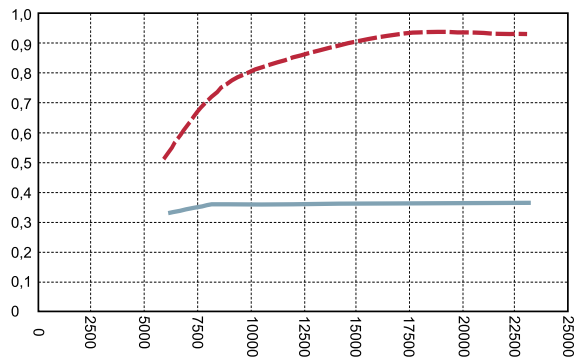


Order data

| | | 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





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 φ) | 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.

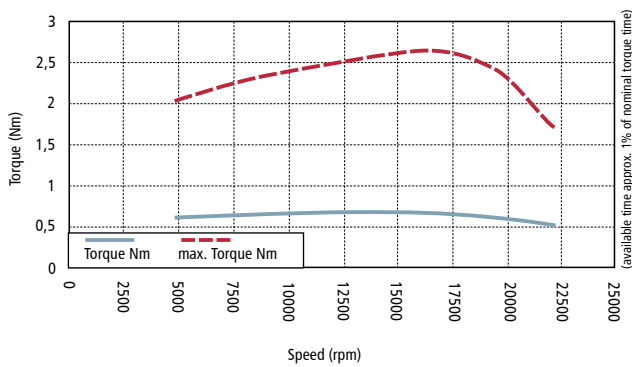
The spindle motor iSA 1200 W is suitable to process light to medium duty work such as Aluminum, wood and plastic.

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

Options

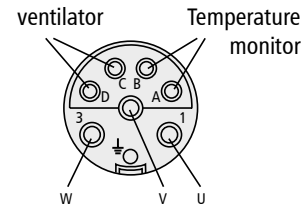
- CoolMin® (external)
- frequency converter SKC 750
- tool changing station
- various collets ER 16
- connection cable in different lengths
- suction device
- mounting plates
- sealing air connection

Torque curves

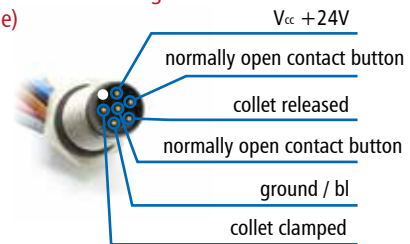


Motor connection

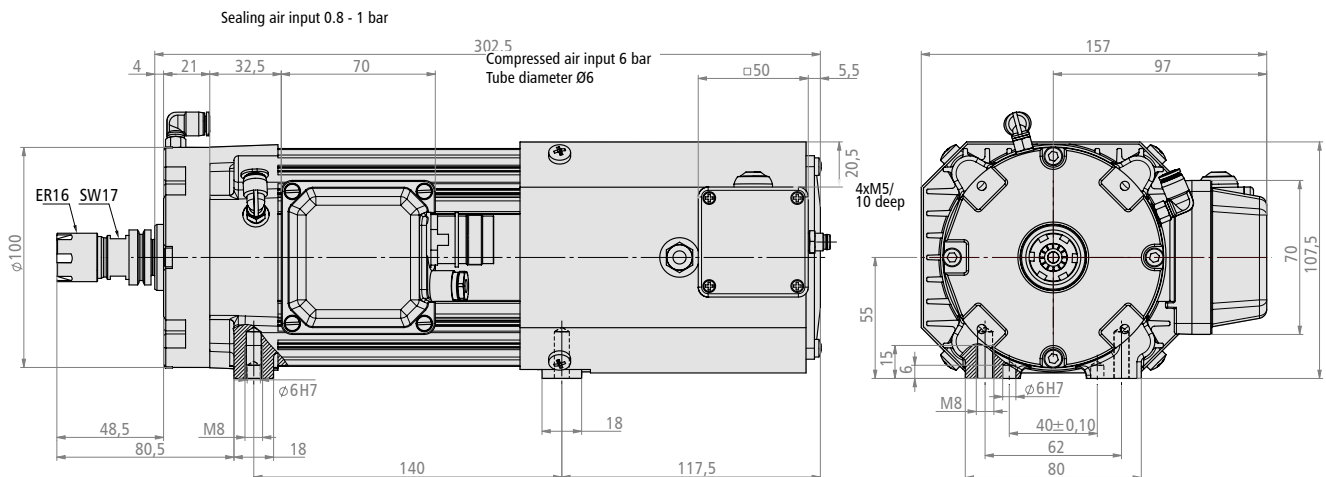
Circular connectors
(M23: 7-polig + PE)



Sensor connector tool changer
(M8: 6-pole)



Dimensional drawing



Order data

| | | |
|------------------------|--|----------------|
| Spindle motor | with collet ER 16 (6 mm) | 477012 3321S |
| iSA 1200 W | 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 | Mounting plate set on LES 5 | 675015 9301 |
| isel systems (Z axis) | 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.

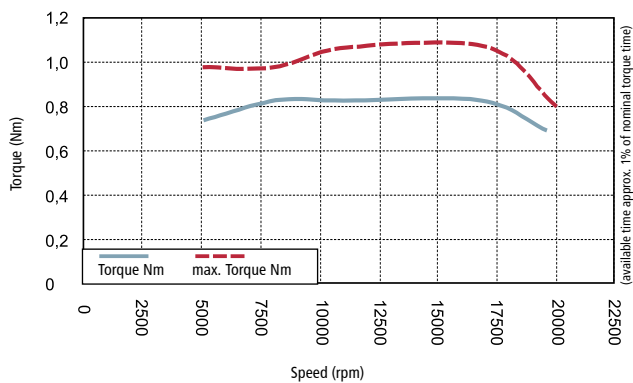
Options

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

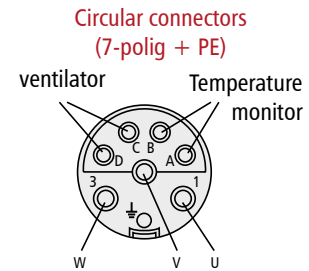


iSA 1500
with CoolMin® internal

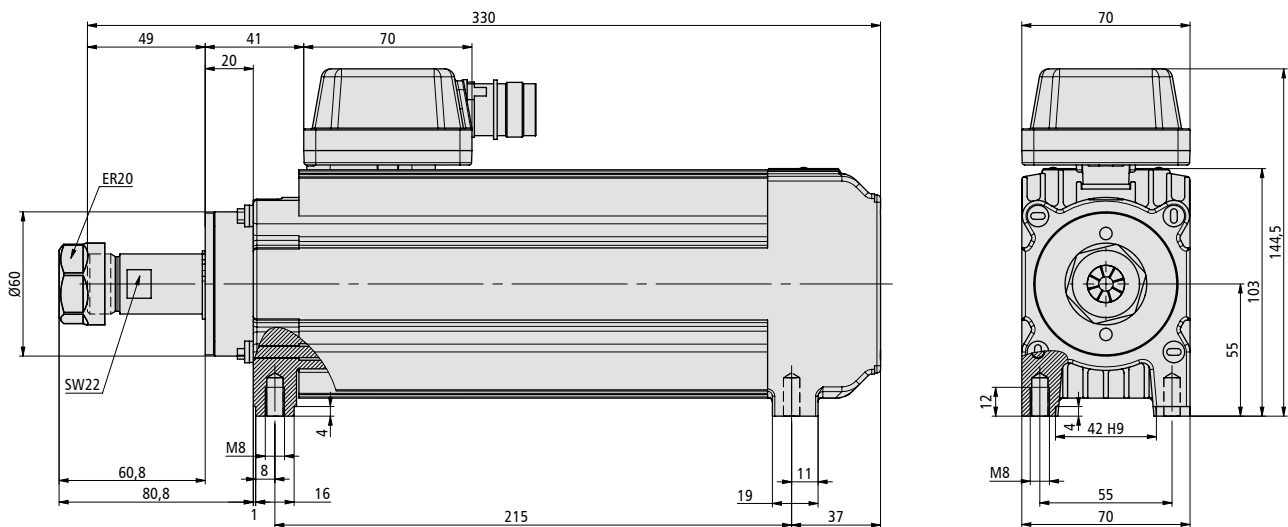
Torque curves



Motor connection



Dimensional drawing



Order data

| | | |
|--|--|----------------|
| 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.

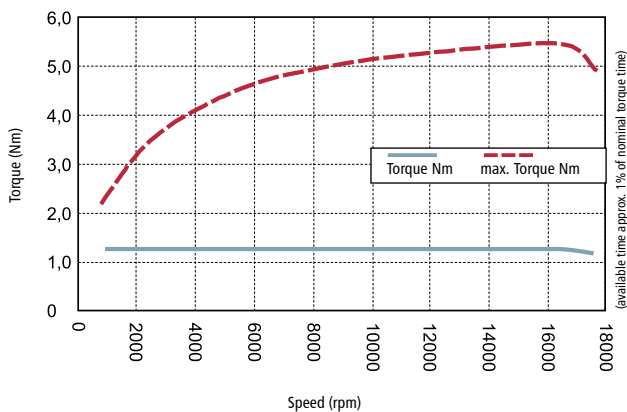
Options

- 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



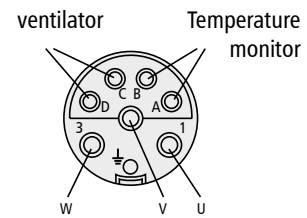
iSA 2200 W
with CoolMin® internal

Torque curves

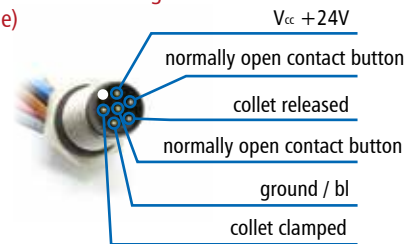


Motor connection

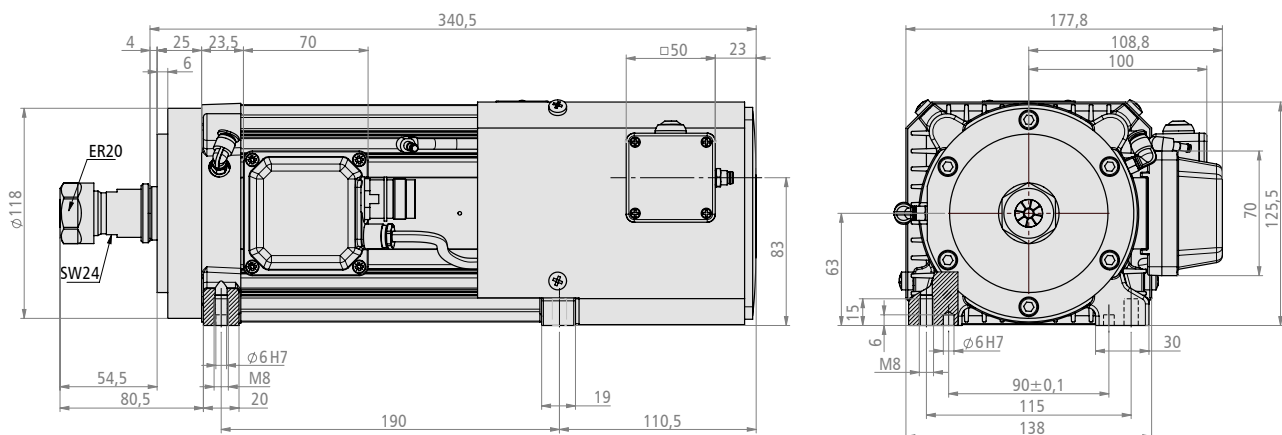
Circular connectors
(M23: 7-polig + PE)



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

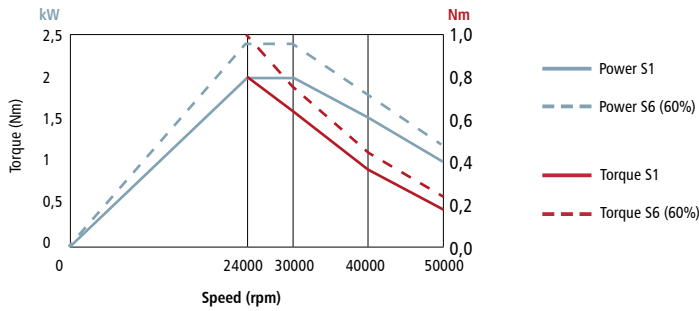
Technical specification

| | |
|----------------------------------|--------|
| 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 |

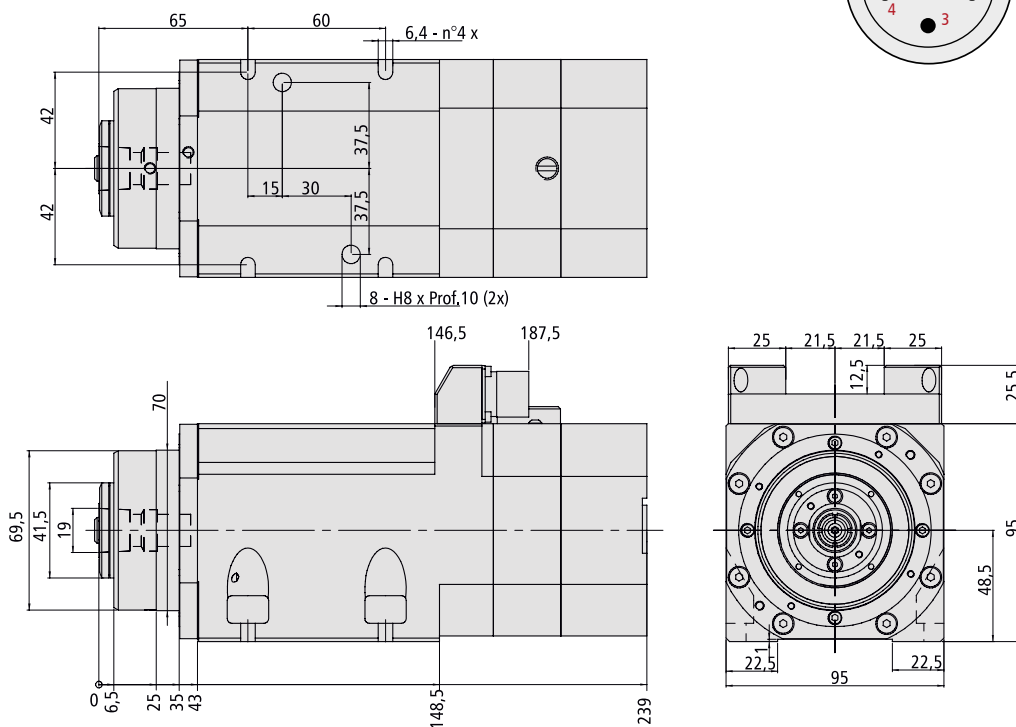
Optional

- 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

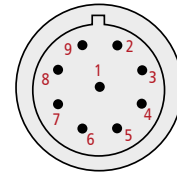


Dimensioned drawings



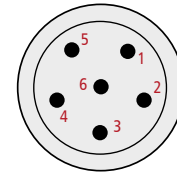
Motor connection

Signals



- 2 +24V DC sensor power supply
- 3 0 V sensors
- 4 Output Sensor S1 (tool locked)
- 5 Output Sensor S2 (tool 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

Order data

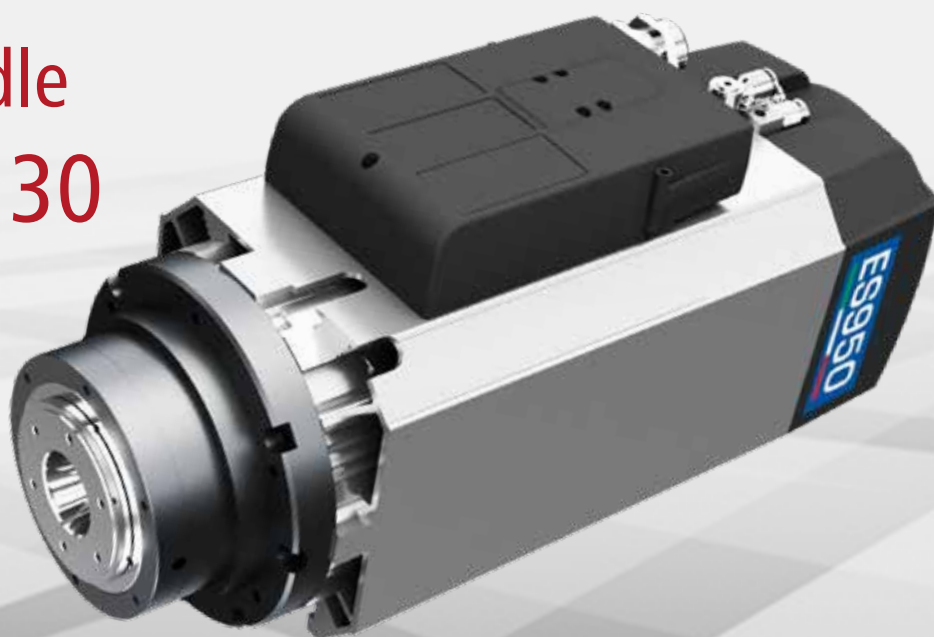
Part No.

| | | |
|-------------------------------|---|-------------|
| 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

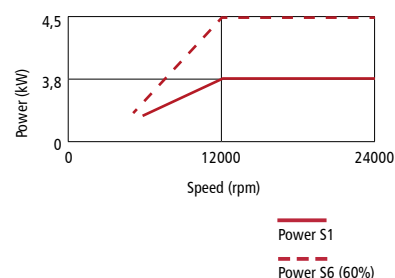
Optional

- 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



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

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

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 |

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 SK 20 SK 30
Ø10 mm Ø13 mm 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



SKC 4000

SKC 1500

SKC 750

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)

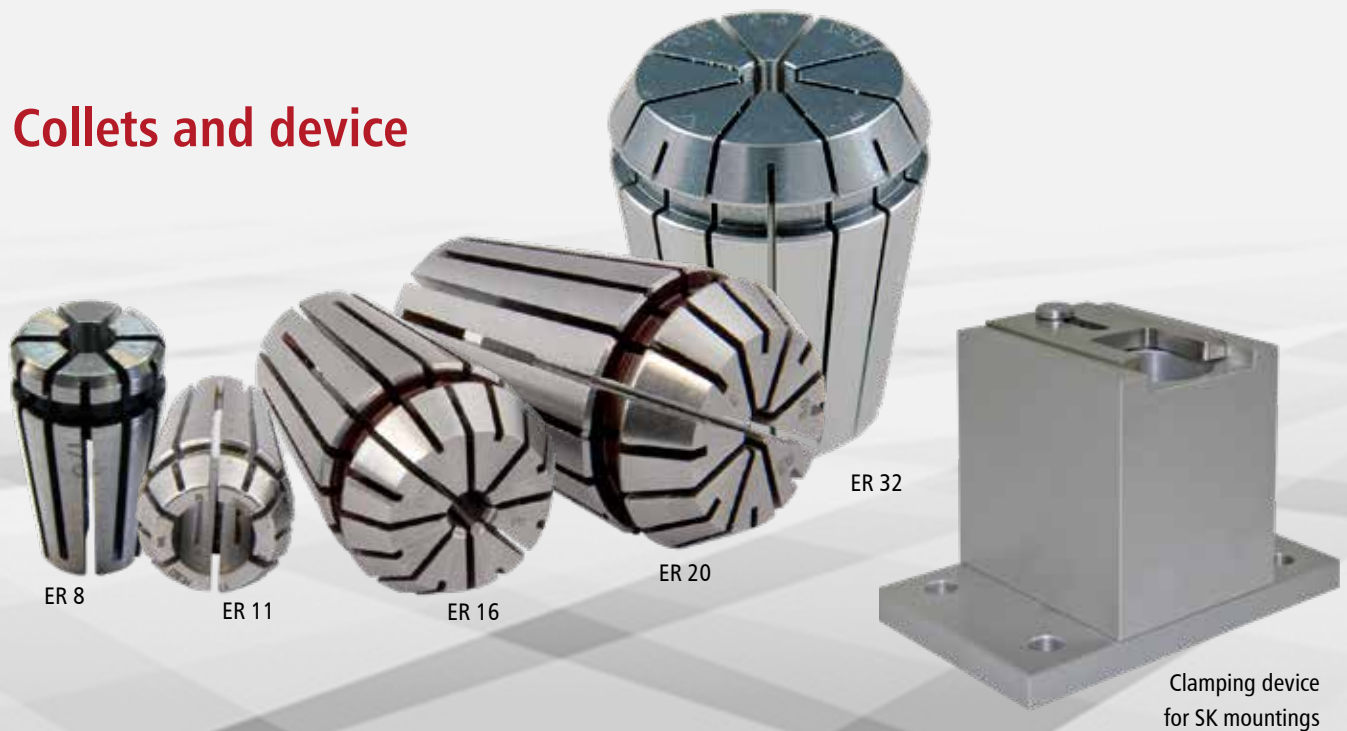
Order data

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



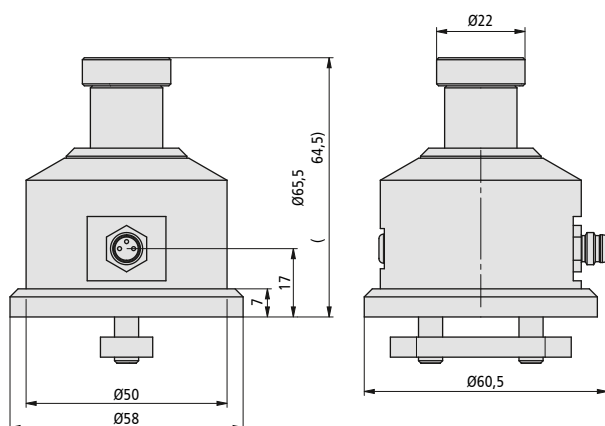
Cutter set



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®



- 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

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. |

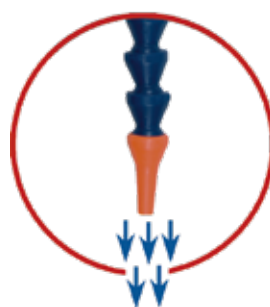


Tool, cooled by CoolMin® internal

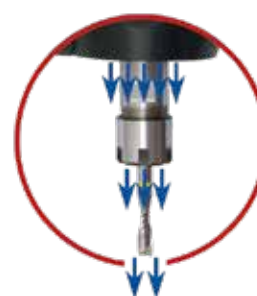
CoolMin® external
with mating hose



CoolMin® internal
with tool cooling system



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



Order data

| | |
|-------------------|--|
| CoolMin® internal | |
| CoolMin® external | incl. servicing kit and electrically-powered valve |

Part No.

| |
|-----------------------|
| see individual motors |
| 239011 0117 |



mobile extraction systems

iAG 350



iAG 720



ME 1500



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

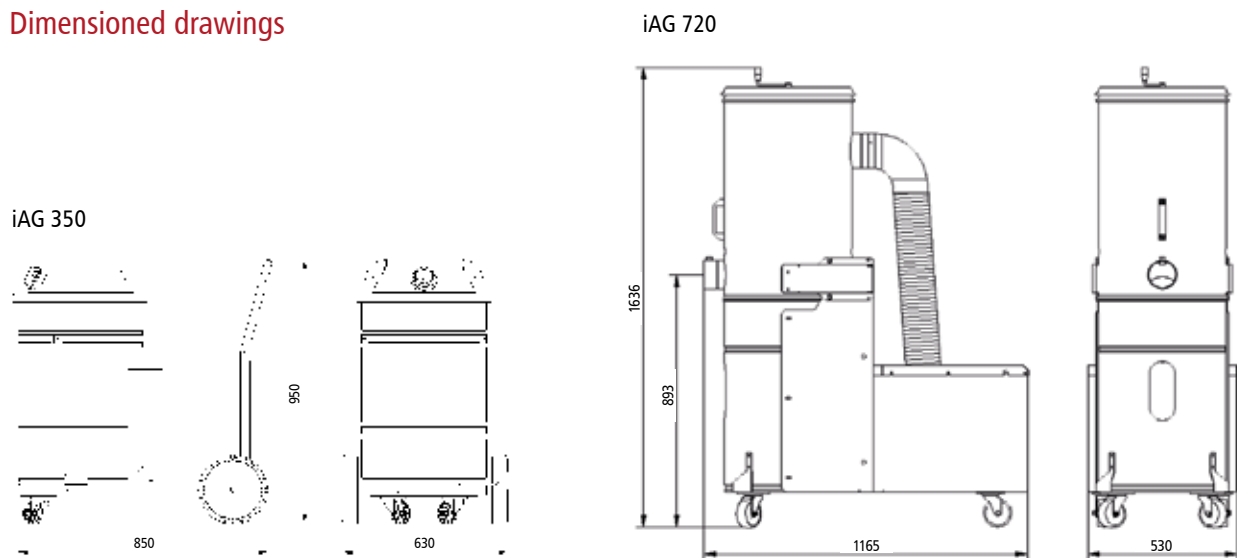
ME 1500

- 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



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 head
(brush of horse-hair, optional ESD)



Extraction device



Dust cover closed



Dust cover open

Air hose inside diameter 80 mm

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

Minimum volume
coolant misting system

with one flexible nozzle, includes 1 l spray oil
with two flexible nozzle, includes 1 l spray oil

Part No.

429116 1000
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:



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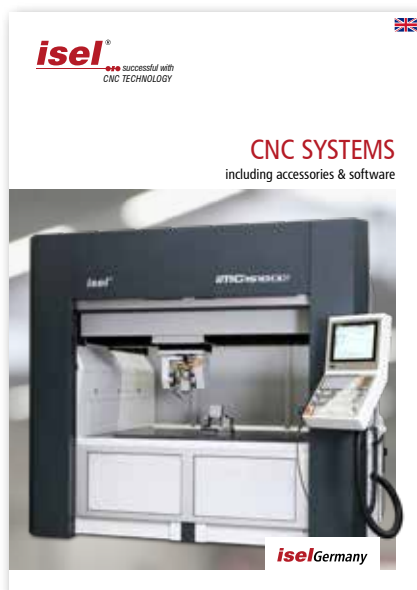
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