

Spindle Motor

MAV 2.075 S



Features

- Robust two-pole AC motor (asynchronous motor)
- Rectangular design, protection class IP54, isolation class F
- Casting bearing plate on A-side
- Aluminium diecasting B-side
- Special shaft for holding drills and milling tools
- Nominal output 0.75 kW (S6-40% mode)
- Speed range 3,000 - 24,000 rpm
- Manual tool change
- Clamping range \varnothing 3 mm – \varnothing 8 mm
- Self-ventilation on B-side
- Speed control by frequency converter
- Spindle bearing:
 - 2 bearings on A-side,
 - 1 bearing on B-side

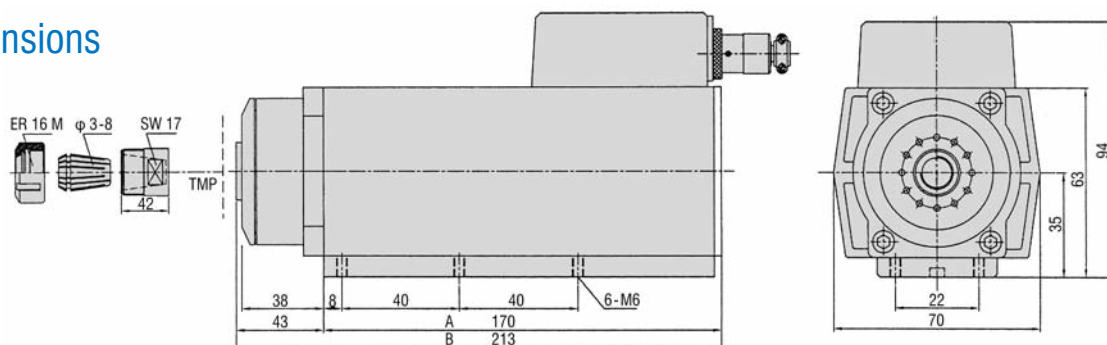
Technical Data Spindle Motor

Description	MAV 2.075 S
Torque at nominal speed 24,000 rpm	0.30 Nm
Speed rpm	3,000 bis 24,000
Poles	2
Nominal voltage	3 x 220 V
S 6 = 40 % Nominal power	0.75 kW
1/100 mm concentricity	1.0
Weight kg	3.2
Collets Type ER 16	3 - 8 mm

Frequency Converter FC 1500-CT

- Output power 1500 VA
- Intrated operating modules with control keys and LC display
- Remote control via analog setpoint and sps compatible I/O signals
- Brake choppers/resistance integrated
- Input voltage AC 230 V
- Protection class IP 20

Dimensions



Main Spindle Drive

HSA-2.07 SC-P

Consisting of a spindle drive motor MAV 2.075 S, frequency converter FC 1500-CT, 8 m of connecting cable, a chuck \varnothing 6 mm and chuck tools

Item no. **310707 1611**

Spindle Motor

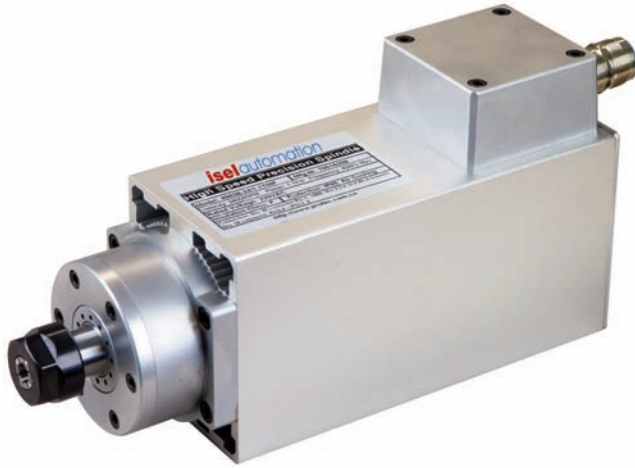
MAV 2.075 S

Asynchronous motor, 2-pole with chuck \varnothing 6 mm and accessories
Item no. **477007 3124** (chuck ER16, page E13)

isel-coolMin-cooling system still in progress

Spindle Motor

MAV 2.11 S



Features

- Robust two-pole AC motor (asynchronous motor)
- Rectangular design, protection class IP54, isolation class F
- Casting bearing plates A- and B-side
- Special shaft for holding drills and milling tools
- Nominal output 1.1 kW (S6-40% mode)
- Speed range 3,000 - 24,000 rpm
- Manual tool change
- Clamping range \varnothing 3 mm – 12,7 mm
- Self-ventilation on B-side
- Speed control by frequency converter
- Spindle bearing:
 - 2 bearings on A-side,
 - 2 bearings on B-side

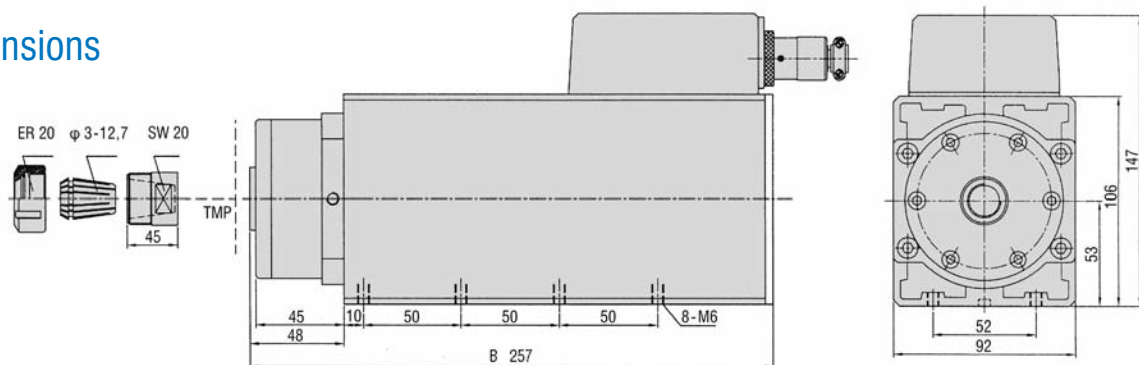
Technical Data Spindle Motor

Description	MAV 2.11 S
Torque at nominal speed 24,000 rpm	0.44 Nm
Speed rpm	3,000 bis 24,000
Poles	2
Nominal voltage	3 x 220 V
S 6 = 40 % Nominal power	1.1 kW
1/100 mm concentricity	1.0
Weight kg	9.5
Collets Type ER 20	3 - 12.7 mm

Frequency Converter FC 1500-CT

- Output power 1500 VA
- Intrated operating modules with control keys and LC display
- Remote control via analog setpoint and sps compatible I/O signals
- Brake choppers/resistance integrated
- Input voltage AC 230 V
- Protection class IP 20

Dimensions



Main Spindle Drive

HSA-2.11 SC-P

Consisting of a spindle drive motor MAV 2.11 S, frequency converter FC 1500-CT, 8 m of connecting cable, a chuck \varnothing 6 mm and chuck tools

Item no. **310712 1611**

Spindle Motor

MAV 2.11 S

Asynchronous motor, 2-pole with chuck \varnothing 6 mm and accessories
Item no. **477011 3124** (Spannzangen ER 20 Seite E31)

isel-coolMin-cooling system still in progress

Spindle Motor

MAV 2.22 S



Features

- Robust two-pole AC motor (asynchronous motor)
- Rectangular design, protection class IP54, isolation class F
- Casting bearing plates A- and B-side
- Special shaft for holding drills and milling tools
- Nominal output 2.2 kW (S6-40% mode)
- Speed range 3,000 - 24,000 rpm
- Manual tool change
- Clamping range \varnothing 3 mm – 12,7 mm
- Self-ventilation on B-side
- Speed control by frequency converter
- Spindle bearing:
 - 2 bearings on A-side,
 - 2 bearings on B-side

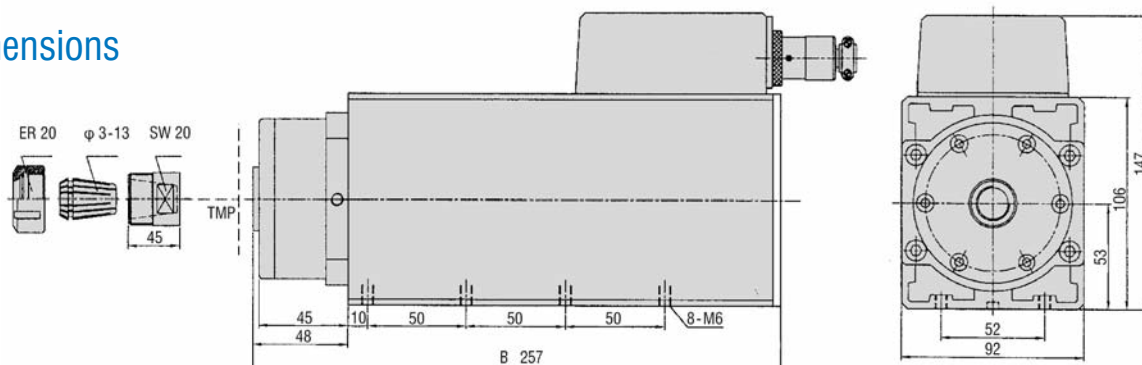
Technical Data Spindle Motor

Description	MAV 2.22 S
Torque at nominal speed 24,000 rpm	0.89 Nm
Speed rpm	3,000 bis 24,000
Poles	2
Nominal voltage	3 x 220 V
S 6 = 40 % Nominal power	2.2 kW
1/100 mm concentricity	1.0
Weight kg	9.5
Collets Type ER 20	3 - 12.7 mm

Frequency Converter FC 1500-CT

- Output power 1500 VA
- Intrated operating modules with control keys and LC display
- Remote control via analog setpoint and sps compatible I/O signals
- Brake choppers/resistance integrated
- Input voltage AC 230 V
- Protection class IP 20

Dimensions



Main Spindle Drive

HSA-2.22 SC-P

Consisting of a spindle drive motor MAV 2.22 S, frequency converter FC 1500-CT, 8 m of connecting cable, a chuck \varnothing 6 mm and chuck tools

Item no. **310723 1611**

Spindle Motor

MAV 2.22 S

Asynchronous motor, 2-pole with chuck \varnothing 6 mm and accessories
Item no. **477022 3124** (Spannzangen ER 20 Seite E31)

isel-coolMin-cooling system still in progress

Spindle Motor

with manual Tool changing
with CoolMin Tool Cooling System

MAHV 2.04 S MAHV 2.04 SC



MAHV 2.04 S with manual Tool changing



MAHV 2.04 SC with CoolMin Tool Cooling System

Features

MAHV 2.04 S MAHV 2.04 SC

- Robust two-pole AC motor (asynchronous motor)
- Rectangular design, protection class IP54, isolation class F
- Casting bearing plate on A-side
- Aluminium diecasting B-side
- Special shaft for holding drills and milling tools
- Nominal output 0.5 kW (S6-40% mode)
- Speed range 5,000 - 30,000 rpm
- Manual tool change
- Clamping range $\varnothing 3 \text{ mm} - \varnothing 6,35 \text{ mm} = 1/8''$
- Self-ventilation on B-side
- Speed control by frequency converter
- Spindle bearing:
 - 2 bearings on A-side,
 - 1 bearing on B-side

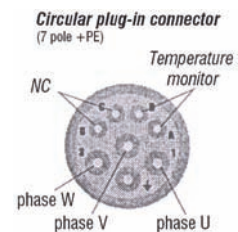
MAHV 2.04 SC

- With isel Low Temperature Cooling System CoolMin

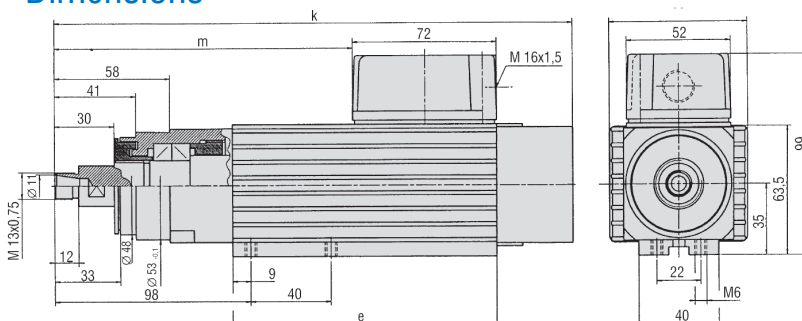
Technical Data Spindle Motor

Description	MAHV 2.04 S MAHV 2.04 SC
Torque at nominal speed 18,000 rpm	0.21 Nm
Speed rpm	5,000 bis 30,000
Poles	2
Nominal voltage	3 x 220 V
S 6 = 40 % Nominal power	0.5 kW
1/100 mm concentricity	1.0
Weight kg	3.0

Motor Connection



Dimensions



Type	e	m	k
MAHV 2.04 S + SC	132	144	258

Asynchronous motor 2 pole with collet $\varnothing 6 \text{ mm}$ and accessory

MAHV-2.04 S	Item no. 477004 3130
MAHV-2.04 SC	Item no. 477004 5130
Main spindle drive	Item no. 310704 1611
Main spindle drive	Item no. 310704 1631

Collets

Type ER 11
(Item numbers)

$\varnothing 3.0 \text{ mm}$	239170 3000
$\varnothing 3.175 \text{ mm}$	239170 3175
$\varnothing 4.0 \text{ mm}$	239170 4000
$\varnothing 5.0 \text{ mm}$	239170 5000
$\varnothing 6.0 \text{ mm}$	239170 6000
$\varnothing 6.350 \text{ mm}$	230170 6375

COOLMin Tool Cooling System

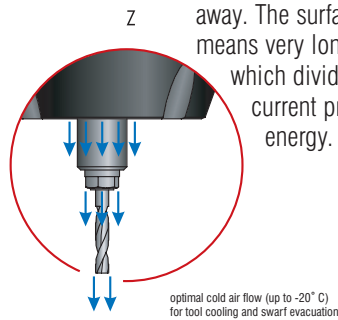
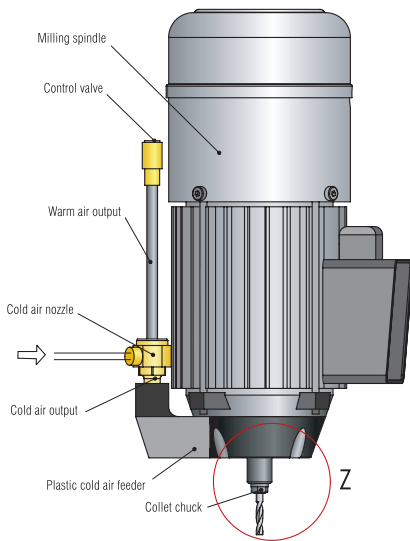


isel Asynchronous Spindle Motor

- Rated power 500 W
- Speed max. 24,000 rpm
- **isel** low temperature cooling system can be integrated (down to -20°C, **isel** patent)
- Tools with internal cooling can be used
- Very good concentricity by means of a new bearing technology
- **isel** frequency converters are matched to the asynchronous motors

500 W – Item no. **310 705 2631** Direct changer

isel Low Temperature Cooling System

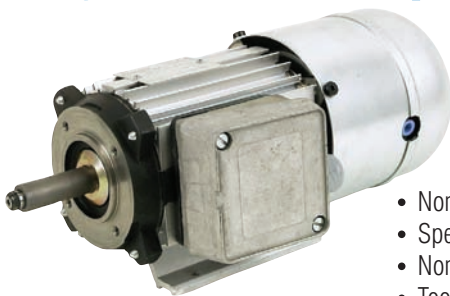


Dry cutting machining is the first choice wherever material, wear of the tool and surface quality permit. The above-mentioned criteria, however, often require cooling. And cooling has meant to date: Humidity. Even the lowest-volume spray cooling involves unpleasant secondary effects: Contamination and sticking chips on the tool or on the surface, and - depending on the material - also negative effects for the structure of the material. Thanks to the patented low temperature cooling, which provides for optimum cooling of tool and surface, any secondary effects can be neglected. The chips are dry and - depending on the material - easy to suck or blow away. The surface is handled gently, and the direct cooling of the tool means very long service lives of the tools, thanks to a cold-air nozzle which divides the air flow into hot and cold air according to the eddy current principle. Only compressed air (6 ... 10 bar) is required as energy.

Technical data:

Compressed-air input: 6 ... 10 bar
 Cooling air: down to approx. -20 °C
 Installation: optional integration with isel asynchronous spindle Motor
 Externally as an add-on for existing spindles.

Asynchronous Spindle Motor



MAW 2.05-SD

- Nominal power output **500 W**
- Speed range **300...24,000 min⁻¹**
- Nominal torque **0.26 Nm**
- Tool changing **directly with pneumatic lifting cylinder (MAW 2.05-SD)**
- Overall size **56**

Main Spindle Drive

Description	Item no.
Main Spindle Drive HSAW 2.05-SDF	310705 2611

The scope of delivery includes:

- spindle motor **MAW 2.05-SD**
- frequency converter (1500 VA)
- connecting line converter-motor (L=8 m)
- throttle
- connecting panel
- collets (d=3 mm)
- maintenance unit with pressure control
- air hose
- turn screws

Technical Data

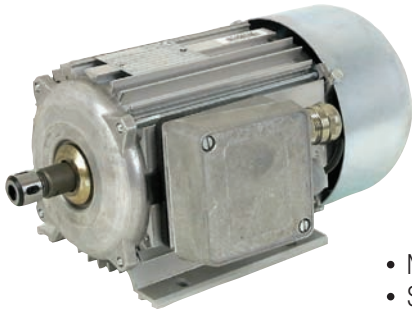
Description	Item no. (PG Screwing)	Item no. (Circular plug-in connector)	Speed range min ⁻¹	Poles	Nominal voltage	Nominal power output kW (S6-40%)	Nominal speed min ⁻¹	Continuous output S1 kW	Concentricity 1/100 mm	Weight kg
MAW 2.05-SD	477505 1224	477505 3224	300-24,000	2	3 x 210 V	0.50	18,000	0.30	2.0	4.0

Collet 3 mm are included in the spindles scope of delivery (Collets side E31)

Main Spindle Drives - Asynchronous

HSA 4.05-SF
HSAW 2.11-KF

Spindle Motor



MA 4.05-S

- Nominal power output **400 W**
- Speed range **200...9,000 min⁻¹**
- Nominal torque **3.0 Nm** (4 pole)
- Tool changing **manually with collet**
- Overall size **63**

Main Spindle Drive

Description	Item no.
Main spindle drive HSA 4.05-SF	310706 1612

The scope of delivery includes:

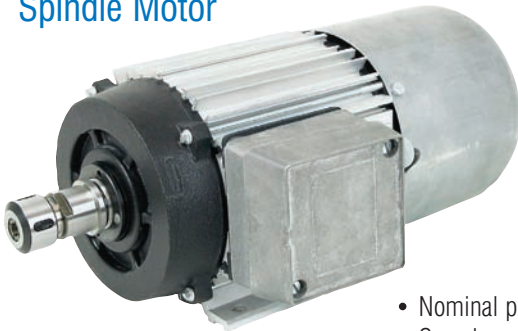
- spindle motor **MA 4.05-S**
- frequency converter (1500 VA)
- connecting line converter-motor (L=8 m)
- hook spanner (width 16-20)
- wrench (SW-15)
- Collet (d=6 mm)
- box nut

Technical Data

Description	Item no. (PG Screwing)	Item no. (Circular plug-in connector)	Speed range min ⁻¹	Poles	Nominal voltage	Nominal power output kW (S6-40%)	Nominal speed min ⁻¹	Continuous output S1 kW	Concentri- city 1/100 mm	Weight kg
MA 4.05-S	477605 1106	477605 3106	200-6,000	4	3 x 210 V	0.40	1,270	0.36	2.0	5.8

Collet 6 mm are included in the spindles scope of delivery

Spindle Motor



MAW 2.11-K

- Nominal power output **1,100 W**
- Speed range **300...15,000 min⁻¹**
- Nominal torque **2.8 Nm**
- Tool changing **and/or automatically (SK 20)**
- Overall size **71**

Main Spindle Drive

Description	Item no.
Main spindle drive HSAW 2.11-KF	310711 3611

The scope of delivery includes:

- spindle motor **MAH 2.11-KF**
- frequency converter (1500 VA)
- connecting line converter-motor (L=8 m)
- throttle
- maintenance unit
- connecting panel
- air hose
- hook spanner
- wrench
- collet (d=6 mm)
- collets holder

Technical Data

Description	Item no. (PG Screwing)	Item no. (Circular plug-in connector)	Speed range min ⁻¹	Poles	Nominal voltage	Nominal power output kW (S6-40%)	Nominal speed min ⁻¹	Continuous output S1 kW	Concentri- city 1/100 mm	Weight kg	Tool holder K=collet holder S=collet
MAW 2.11-K**	477711 1313	477711 3313	300-15,000	2	3 x 210 V	1.1	4,200	0.75	2.0	11.0	K (ø 3-12.7 mm)*

* Collets holder SK20 with collet 6 mm is included in the spindles scope of delivery.

** Also by 20,000 rpm available (special bearing). (Collets Side E31)

Main Spindle Drives - Asynchronous

HSA 2.22-KF
HSA 4.22-KF
HSAW 2.22-K3SC

Spindle Motor



MAW 2.22-K
MAW 4.22-K

- Nominal power output **2,200 W**
- Speed range **300...15,000 min⁻¹ / 200...7,500 min⁻¹ ***
- Nominal torque **7.5 / 15.1 Nm ***
- Tool changing **automatically (SK20)**
- Overall size **80**

* first value for MAW 2.22-K
 second value for MAW 4.22-K

Main Spindle Drive

Description	Item no.
Main spindle drive HSAW 2.22-KF	310722 3611
Main spindle drive HSAW 4.22-KF	310722 3612

The scope of delivery includes:

- spindle motor **MAW 2.22-K/MAW 4.22-K**
- frequency converter (4,000 VA)
- connecting line converter-motor (L=8 m)
- throttle
- hook spanner
- maintenance unit
- wrench
- connecting panel
- collet (d=6 mm)
- air hose
- collets holder

Technical Data

Description	Item no. (PG Screwing)	Artikel-Nr. (Circular plug-in connector)	Speed range min ⁻¹	Poles	Nominal voltage	Nominal power output kW (S6-40%)	Nominal speed min ⁻¹	Continuous output S1 kW	Concentricity 1/100 mm	Weight kg	Tool holder K=collets holder (SK20) S=collet
MAW 2.22-K	477822 1313	477822 3313	300-15,000	2	3 x 400 V	2.2	4,500	1.5	2.0	18.0	K (ø 3-12.7 mm)*
MAW 4.22-K	477822 1307	477822 3307	200-7,500	4	3 x 400 V	2.2	2,250	1.5	2.0	18.0	K (ø 3-12.7 mm)*

* Collets holder SK20 with collet 6 mm is included in the spindles scope of delivery

Spindle Motor



MAW 2.22-K3S

- Nominal power output **2,200 W**
- Speed range **300...15,000 min⁻¹**
- Tool changing **automatically (SK 30)**
- Overall size **80**
- Threefold bearing (Spindle bearing)

Main Spindle Drive

Description	Item no.
Main spindle drive HSAW 2.22-K3SC	310730 3615

The scope of delivery includes:

- spindle motor **MAH 2.22-K3S**
- frequency converter (4000 VA)
- throttle
- maintenance unit
- connecting panel
- air hose
- collet (d=6 mm)
- collets holder
- collets accessory

Technical Data

Item no.	Item no.	Speed range min ⁻¹	Poles	Nominal voltage	Nominal power output kW (S6-40%)	Nominal speed min ⁻¹	Continuous output S1 kW	F _{axial} / F _{radial} N	Concentricity 1/100 mm	Weight kg
Spindle motor MAW 2.22-K3S	Main spindle drive HSAW 2.22-K3SC									
477822 1515	310730 3615	300-15,000	2	3 x 400 V	2.2	4,500	1.5	400/350	2.0	18.5

Main spindle drives **HSAW** to be made up of spindle motor, a adapted frequency converter as soon as accessory. (Collets Side E31)

Main Spindle Drives - Accessory

UFM 500
UFM 1050

Universal Milling/Drilling Motors



UFM 500

UFM 1050

UFM 500

- Input power 500 W
- Output power 345 W
- Torque 0.14 Nm

UFM 1050

- Input power 1,050 W
- Output power 720 W
- Torque 0.32 Nm

Technical Data

	Item no.	Load speed min ⁻¹	Voltage V	Degree of efficiency %	Input power W	Output power W	Torque Nm
UFM 500	420003 0500	22,600	230	68	500	345	0.14
UFM 1050	420003 1050	21,000	230	71	1050	720	0.32
UFM 500-11	420003 0501	22,600	115	68	500	345	0.14
UFM 1050-11	420003 1051	21,000	115	71	1050	720	0.32

Clamping Blocks

Clamping blocks	Item no.
Fixings Ra 100 and Ra 150 mm	290 902
Fixing Ra 100 mm	290 903
Fixing Ra 125 mm	290 904



Tool-Changing Station for HSAW Spindle Motors

Scope of Delivery:

- pneumatic connecting panel
- hose, 3 m
- tool-changing station (without collets holder)

Tool-changing station	Item no.
Tool-changing station x4	239011 0040
Tool-changing station x5	239011 0050
Tool-changing station x10	239011 0100

Collets holding individually	Item no.
SK 20 (collets 3-10 mm)	239122
SK 20 (collets 3-12.7 mm)	239122 9000

Direct changer for HSAW 2.05-SDF on Request.

Dust Exhaust ...



Dust barrier closed



Dust barrier open

... for Spindle

MAW 2.11 K, MAW 2.22 K

- with pneumatic opening of the dust cover

Item no. **239 011 0120**

... for Spindle

MAV 2.11 S, MAV 2.22 S

- with manually actuated opening of the dust cover

Item no. **239 011 0121**