

ms



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CNC machines

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- IWH F-5 vacuum robots
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- Linear track
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- Pre-aligners
- Controller and accessories



CNC machine

with step motor drive

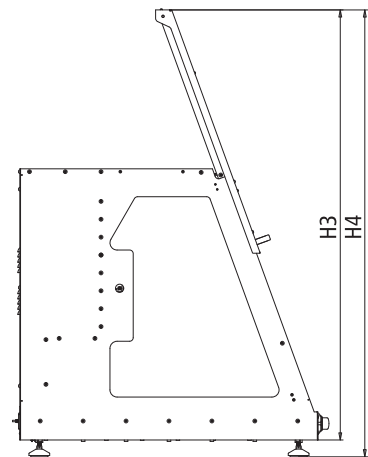
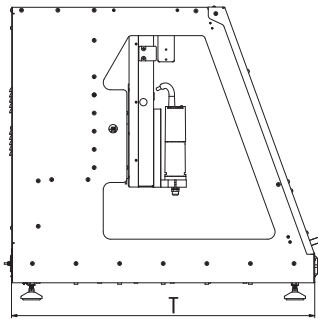
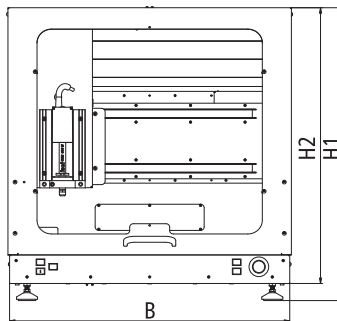
ICP



ICP 4030 with hood open

Dimensioned drawings

		ICP 3020	ICP 4030
Width W	[mm]	610	780
Depth D	[mm]	650	850
Height H1	[mm]	715	810
Height H2	[mm]	670	770
Height H3	[mm]	1030	1203
Height H4	[mm]	1080	1250



CNC machine

with step motor drive

ICP

General

CNC machines in the ICP series have been developed from the proven CPM series. By introducing a sliding door, the machines can now be operated in a sitting position which, *inter alia*, leads to shorter cycle times when opening the hood. The chassis is completely bolted instead of being welded like its predecessors. This produces higher precision when building the machine and makes servicing easier. In addition, it was possible to optimise the resonance and vibration behaviour and therefore lower noise build-up has been achieved.

Technical specification

	ICP 3020	ICP 4030
Traverse path X/Y/Z [mm]	300 × 200 × 90	400 × 300 × 140
Clamping table surface W × D [mm]	500 × 250	600 × 375
Throughput [mm]	115	170
Dimensions W × D × H [mm]	610 × 650 × 715	780 × 850 × 810
Guides	Linear units with precision steel shafts and recirculating ball slots, clearance free adjustable	
Process speed X/Y/Z [mm/s]	100	
Repeatability [mm]	± 0.02	
Drive motors	Stepper motors	
Drive elements X/Y/Z	Ball screw drives 16 × 10/16 × 10/16 × 4 mm Clearance free adjustable (optional: 16 × 4 mm in X/Y/Z)	
Controller	iMC-P step controller with 4 final stages 48V/4.2A and 500W power supply unit with processor board	
Operation	Function keys and emergency shutdown	
Software	WinRemote (optional: ProNC, isy 2.5 PLUS)	
Weight [kg]	appr. 102	appr. 120
Part no.:	280210 7406 *	280220 7405 *

* The deliverables include an accompanying pack with mechanical accessories (*inter alia* Hand lever clamping device, stop rails Triangle wrench, open jaw wrench, hook wrench, Allen key, one 6-socket bench extension, connection lead, power lead)

Accessories

280220 9012	Cooling/spray device for ICP 3020/4030
280120 9010	Length measuring probe for ICP 3020/4030
280120 9004	Workspace lighting for ICP 3020/4030
420003 0500	Milling motor UFM 500, 500 W, 11,000...25,000 r.p.m.
280110 9001	Suction device for UFM 500
Z13-337030	isy-CAM 2.5 PLUS
Z11-333500	ProNC software
310704 1631	iSA 500 spindle motor up to 30,000 rpm, 500 W, with frequency converter, CoolMin tool cooling system, ER 11 clamping ring and motor lead
310707 1631	iSA 750 spindle motor up to 24,000 rpm, 750 W, with frequency converter, CoolMin tool cooling system, ER 16 clamping ring and motor lead (only ICP 4030)
280210 9001	Suction device for iSA 750
280000 0046	Fixing plate for main spindle drive
290055	Vice 1 (W 130 × H 45 × L 152 mm)
290056	Vice 2 (W 180 × H 75 × L 215 mm)

CNC machine

with servomotor drive

ICV 4030

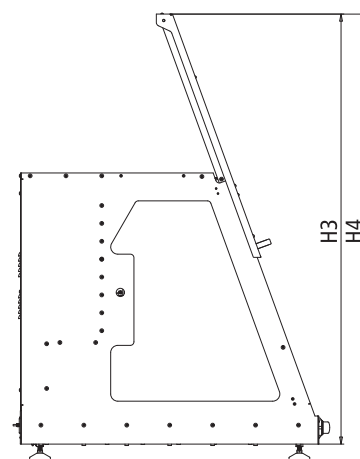
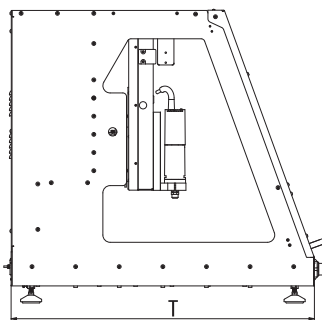
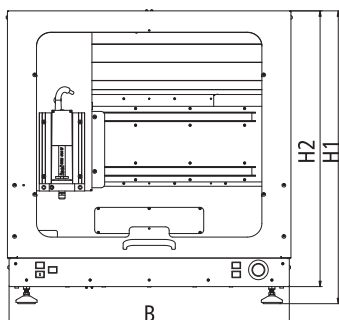
Control unit
... with integrated
control computer.



ICV 4030 with hood open

Dimensioned drawings

		ICV 4030
Width W	[mm]	780
Depth D	[mm]	835
Height H1	[mm]	806
Height H2	[mm]	765
Height H3	[mm]	1203
Height H4	[mm]	1250



CNC machine

with servomotor drive

ICV 4030

General note

The ICV 4030 has been developed from the proven, 3D-enabled CNC machine CPV 4030, which is delivered ready for connection to the mains.

The sliding hood, opening upwards, can be operated conveniently from a sitting position. The completely bolted chassis produces higher precision when building the machine and is easier to service. In addition, it was possible to optimise the resonance and vibration behaviour and therefore lower noise build-up has been achieved. Prerequisites for working with the ICV 4030 are simply basic knowledge of CNC systems, general IT literacy and basic knowledge of graphics programs!

Technical specification

	ICV 4030
Traverse path X/Y/Z [mm]	395 x 300 x 100
Clamping table surface W × D [mm]	600 x 375
Throughput [mm]	150
Dimensions W × D × H [mm]	780 x 835 x 806
Guides	Linear units with precision steel shafts and recirculating ball slots, adjustable for no play
Processing speed X/Y/Z [mm/s]	200
Repeatability [mm]	± 0,02
Drive motors	Servomotors
Drive elements X/Y/Z	Recirculating ball transmission 16 × 10/16 × 10/16 × 10 mm clearance free adjustable (optional: 16 × 4 mm in X/Y/Z)
Controller	iMC CAN controller with 3 drive controllers, integrated control computer, I/O module, safety circuit and rest state monitoring Power supply unit 48V/1000 W
Operation	Function keys and emergency shutdown
Software	WinRemote (optional: ProNC, isy 2.5 PLUS)
Weight [kg]	appr. 120
Part no.	280230 4405 *

* The deliverables include an accompanying pack with mechanical accessories (*inter alia* Hand lever clamping device, stop rails, triangle wrench, open jaw wrench, hook wrench, Allen key, one 6-socket bench extension, connection lead, power lead)

Accessories

280220 9012	Cooling/spray device for ICV 4030
280120 9010	Length measurement probe for ICV 4030
280120 9004	Workspace lighting for ICV 4030
420003 0500	Milling motor 500 W, 11,000...25,000 r.p.m.
420003 1050	Milling motor 1050 W, 11,000...25,000 r.p.m.
280110 9001	Suction device for UFM 500/1050
280120 9003	Engraving mat, incl. adapter plate
Z13-337030	isy-CAM 2.5 Plus
Z11-333500	ProNC Software
310704 1631	iSA 500 spindle motor up to 30,000 rpm, 500 W, with frequency converter, CoolMin tool cooling system, ER 11 clamping ring and motor lead
310707 1631	iSA 750 spindle motor up to 24,000 rpm, 750 W, with frequency converter, CoolMin tool cooling system, ER 16 clamping ring and motor lead
280210 9001	Suction device for iSA 500/iSA 750
280000 0046	Fixing plate for main spindle drive

Note:

Vacuum clamping plates can be clamped in sizes A5 - A3. (see page E31)

CNC machine

with servomotor drive

EUROMOD[®]


EuroMod MP 30 with closed sliding door

Technical specification

	<i>EuroMod[®]</i> MP 30	<i>EuroMod[®]</i> MP 45	<i>EuroMod[®]</i> MP 65
Traverse path X/Y/Z [mm]	650/300/250	650/450/250	1000/650/250
Clamping table surface W×D [mm]	900x350	900x500	1200x700
Throughput [mm]	350		
Dimensions W × D × H [mm]	1160x800x1700	1160x1110x1700	1480x1510x1700
Processing speed X/Y/Z	appr. 250 mm/s		
Repeatability [mm]	± 0,02		
Drive motors	48V servomotors		
Drive elements X/Y/Z	Recirculating ball drive, clearance free adjustable		
Controller	iMD CAN controller with 3 drive controllers, expandable to 12 axes (max. 6 interpolated & 6 handling axes), PC, I/O module, safety circuit with rest state monitoring, power supply unit 48V/1000 W		
Operation	19" CNC control panel with touch screen, keyboard and mouse		
Weight [kg]	appr. 250	appr. 280	appr. 375
Software	Windows, WinRemote (optional: ProNC, isy 2.5 PLUS)		
Connection values	230V, 16A		
Part no.	275133 33665	275143 33665	275153 33665

* without mounted components on the axes.

CNC machine

with servomotor drive

EUROMOD[®]

General note

The choice of the ideal CNC machine for you should focus both on the clamping area for the workpiece, materials or plates to be machined and on the strategy or difficulties of the machining. In principal, all machines are perfectly suited for machining light metals, non-ferrous metals, plastics and wood. Extensive range of accessories for all our CNC machines to order (see page E18 et seq.).

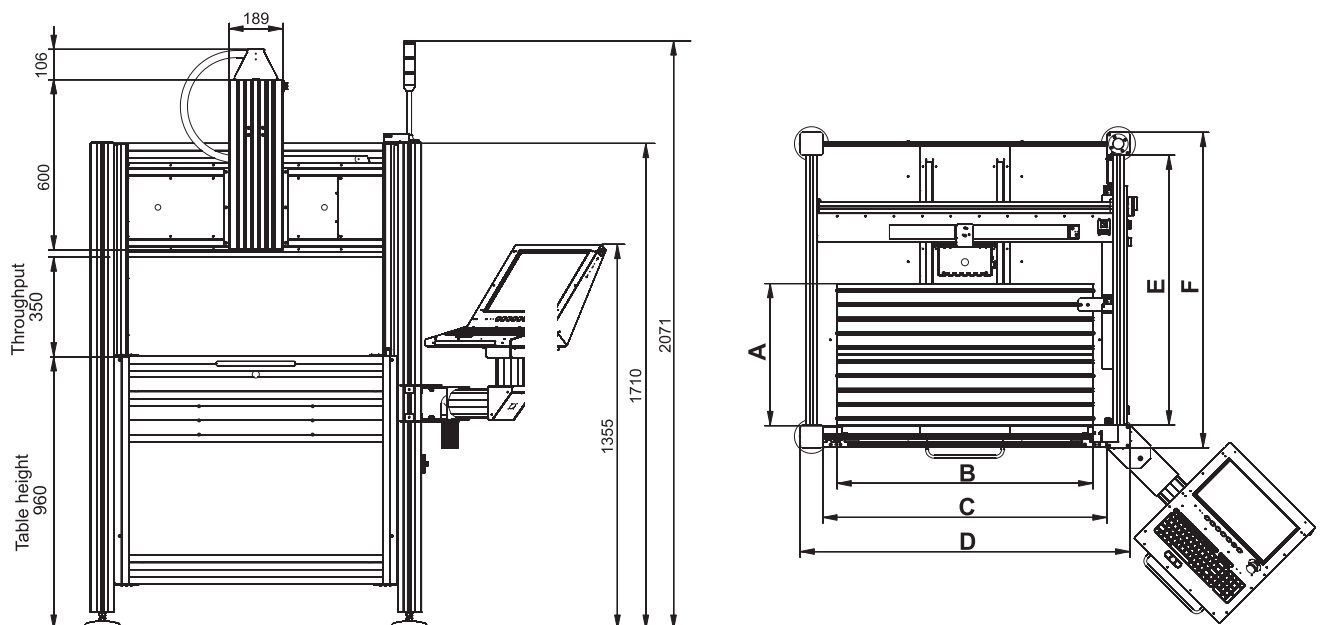
Options

- PC control console with 2 free PCI plug-ins (for use by external PCI hardware)
- Stainless steel keyboard
- Safety light curtain
- Milling and engraving spindles
- SK11/SK20 automatic tool change stations
- Minimum quantity lubrication or CoolMin cooling system
- Vacuum clamping benches
- Suction device
- 4. Axis e. g. RDH series installation
- pneumatic sliding door
- closed hood attachment

Setup

- Portal: fixed, bench: mobile

Dimensioned drawings/dimensions



	A	B	C	D	E	F
EuroMod MP30	350	900	1000	1160	640	800
EuroMod MP45	500	900	1000	1160	950	1110
EuroMod MP65	700	1200	1200	1480	1350	1510

Technical specifications subject to change.

CNC machine

with servomotor drive

FLATCom®
M series



FlatCom M 30 without hood

FlatCom M 30 with hood open

Technical specification

	<i>FLATCom®</i> M 20	<i>FLATCom®</i> M30	<i>FLATCom®</i> M40	<i>FLATCom®</i> M50
Traverse path X/Y/Z [mm]	700/600	700/900	1200/900	1200/1400
Z lift [mm]	150 (optional 250, in each case without processing unit)			
Clamping table surface W×D [mm]	750x750	750x1000	1250x1000	1250x1500
Z-Throughput [mm]	200 (optional 300, in each case without processing unit)			
Dimensions W × D × H [mm]	1420x1150x1870	1420x1450x1870	1920x1450x1870	1920x1950x1870
Processing speed X/Y/Z	appr. 250 mm/s			
Repeatable accuracy [mm]	± 0,02			
Drive motors	48V servomotors			
Drive elements X/Y/Z	Recirculating ball drive, clearance free adjustable			
Controller	iMD CAN controller with 3 drive controllers, expandable to 12 axes (max. 6 interpolated & 6 handling axes), PC, I/O module, safety circuit with rest state monitoring, power supply unit 48V/1000 W			
Operation	19" CNC control panel with touch screen, keyboard and mouse			
Weight [kg]	appr. 300	appr. 340	appr. 450	appr. 525
Software	Windows, WinRemote (optional: ProNC, isy 2.5 PLUS)			
Connection values	400V, 16A			
Part no.	275023 32355 **	275033 32355 **	275043 32355 **	275053 32355 **

* without mounted components on the axes.

** with switchgear cabinet and table

CNC machine

with servomotor drive

FLATCom[®]
M series

General note

The choice of the ideal CNC machine for you should focus both on the clamping area for the workpiece, materials or plates to be machined and on the strategy or difficulties of the machining. In principal, all machines are perfectly suited to machining **light metals, non-ferrous metals, plastics and wood**. Extensive range of accessories for all our CNC machines to order (see page E18 *et seq.*).

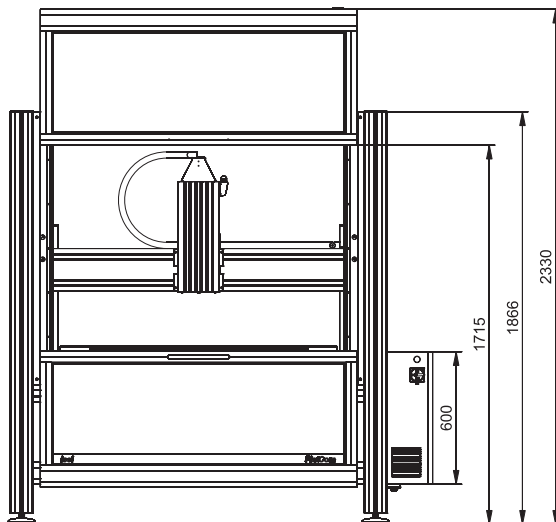
Options

- PC control console with 2 free PCI plug-ins (for use by external PCI hardware)
- Safety light curtain
- toothed belt drive
- Milling and engraving spindles
- SK11/SK20 automatic tool change stations
- Minimum amount lubrication or CoolMin cooling system
- Vacuum clamping benches
- Suction device
- 4. Axis e. g. RDH series installation
- Version without hood
- Maximum 6 interpolated axes + 6 handling axes
- Portal gap 300 mm
- pneumatic sliding door
- closed hood attachment

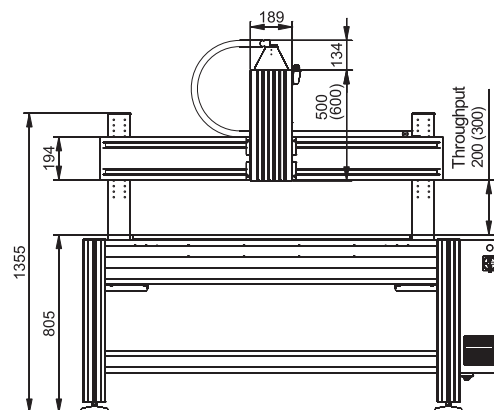
Setup

- Portal: mobile, bench: fixed

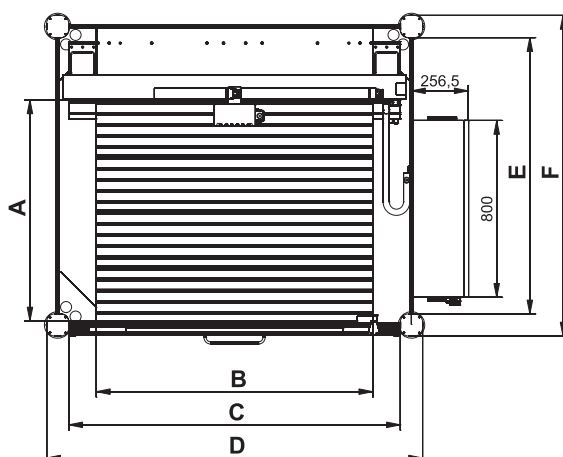
Dimensioned drawings/dimensions



FlatCom with sub-frame and hood



FlatCom with sub-frame, without hood



	A	B	C	D	E	F
FlatCom M20	750	750	1000	1200	950	1150
FlatCom M30	1000	750	1000	1200	1250	1450
FlatCom M40	1000	1250	1500	1700	1250	1450
FlatCom M50	1500	1250	1500	1700	1750	1950

CNC machine

with servomotor drive

FLATCom[®]
L series



FlatCom L without hood

Technical specification

	FLATCom [®] L150	FLATCom [®] L250	FLATCom [®] L300
Processing areas X/Y/Z [mm] *	1500/1700	2500/1700	1700/3000
Z lift [mm]	200 (optional 300, in each case without processing unit)		
Clamping table surface W × D [mm]	1750 × 2250	2750 × 2250	2250 × 3250
Z-Throughput [mm]	250 (optional 500, in each case without processing unit)		
Dimensions W × D × H [mm]	2216 × 2430 × 1600	3216 × 2430 × 1600	2430 × 3716 × 1600
Processing speed X/Y/Z	appr. 250 mm/s		
Repeatable accuracy [mm]	± 0,02		
Drive motors	48 V servomotors		
Drive elements X/Y/Z	Recirculating ball drive, clearance free adjustable		
Controller	iMD CAN controller with 3 drive controllers, expandable to 12 axes (max. 6 interpolated & 6 handling axes), PC, I/O module, safety circuit with rest state monitoring, power supply unit 48 V/1000 W		
Operation	19" CNC control panel with touchscreen, keyboard and mouse		
Weight [kg]	appr. 435	appr. 510	appr. 580
Software	Windows, WinRemote (optional: ProNC, isy 2.5 PLUS)		
Connection values	400 V, 16 A		
Part no.	275062 34565 **	275072 34565 **	275082 34565 **

* without mounted components on the axes.

** without protective hood

CNC machine

with servomotor drive

FLATCom[®]
L series

General note

The choice of the ideal CNC machine for you should focus both on the clamping area for the workpiece, materials or plates to be machined and on the strategy or difficulties of the machining. In principal, all machines are perfectly suited to machining **light metals, non-ferrous metals, plastics and wood**. Extensive range of accessories for all our CNC machines to order (see page E18 *et seq.*).

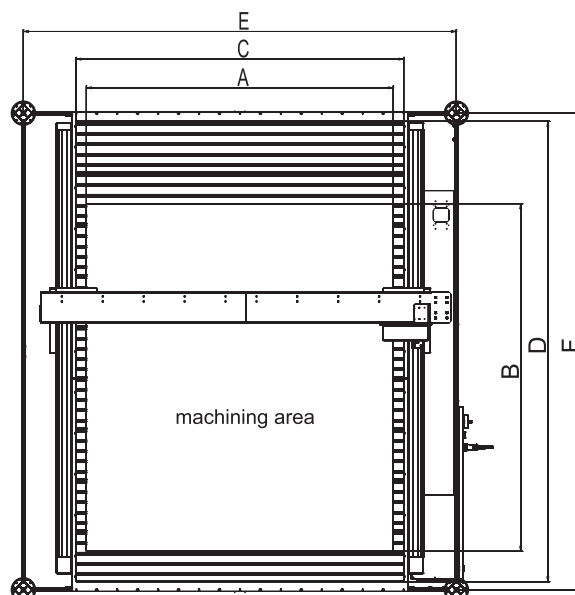
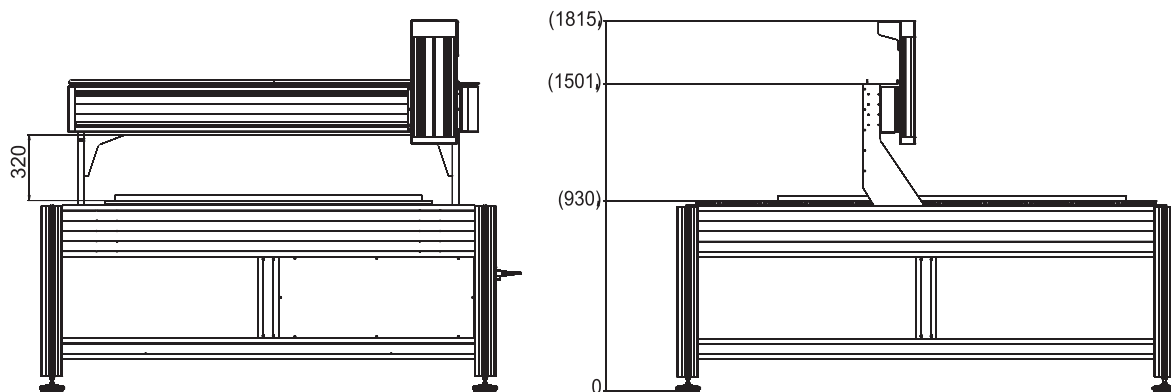
Options

- PC control console with 2 free PCI plug-ins (for use by external PCI hardware)
- Safety light curtain
- toothed belt drive
- Milling and engraving spindles
- SK11/SK20 automatic tool change stations
- Minimum quantity lubrication or CoolMin cooling system
- Vacuum clamping benches
- Suction device
- 4. Axis e. g. RDH series installation
- Version without hood
- Maximum 6 interpolated axes + 6 handling axes
- Portal gap 300 mm
- Protective hood

Setup

- Portal: mobile, bench: fixed

Dimensioned drawings/dimensions



	A	B	C	D	E	F
FlatCom L 150	1500	1700	1750	2000	2116	2330
FlatCom L 250	2000	1700	1750	2000	2616	2330
FlatCom L 300	2000	3000	2050	3250	2616	2616

CNC machine

with servomotor drive

FLATCom[®]
XL series



FlatCom XL with control panel

Technical specification

	FLATCom [®] 102/72	FLATCom [®] 102/112	FLATCom [®] 142/112	FLATCom [®] 142/162	FLATCom [®] 142/252
Processing areas X/Y/Z [mm] *	1020/720/220	1020/1120/220	1420/1120/220	1420/1620/220	1420/2520/220
Clamping table surface W×D [mm]	1125 x 1300	1125 x 1700	1500 x 1700	1500 x 2200	1500 x 3050
Z-Throughput [mm]	235 (optional 435, in each case without processing unit)				
Dimensions W × D × H [mm]	2084/1584/1890	2084/1984/1890	2459/1984/1890	2459/2484/1890	2459/3384/1890
Processing speed X/Y/Z	appr. 250				
Repeatable accuracy [mm]	± 0,02				
Drive motors	48V servomotors				
Drive elements X/Y/Z	Recirculating ball drive, clearance free adjustable				
Controller	iMD CAN controller with 3 drive controllers, expandable to 12 axes (max. 6 interpolated & 6 handling axes), PC, I/O module, safety circuit with rest state monitoring, power supply unit 48V/1000 W				
Operation	19" CNC control panel with touchscreen, keyboard and mouse				
Weight [kg]	appr. 550	appr. 600	appr. 700	appr. 800	appr. 1000
Software	Windows, WinRemote (optional: ProNC, isy CAD-CAM)				
Connection values	400 V, 16 A				
Part no.	274552 0013	274553 0013	274554 0013	274555 0013	274556 0013

* without mounted components on the axes.

CNC machine

with servomotor drive

FLATCom[®]
XL series

General note

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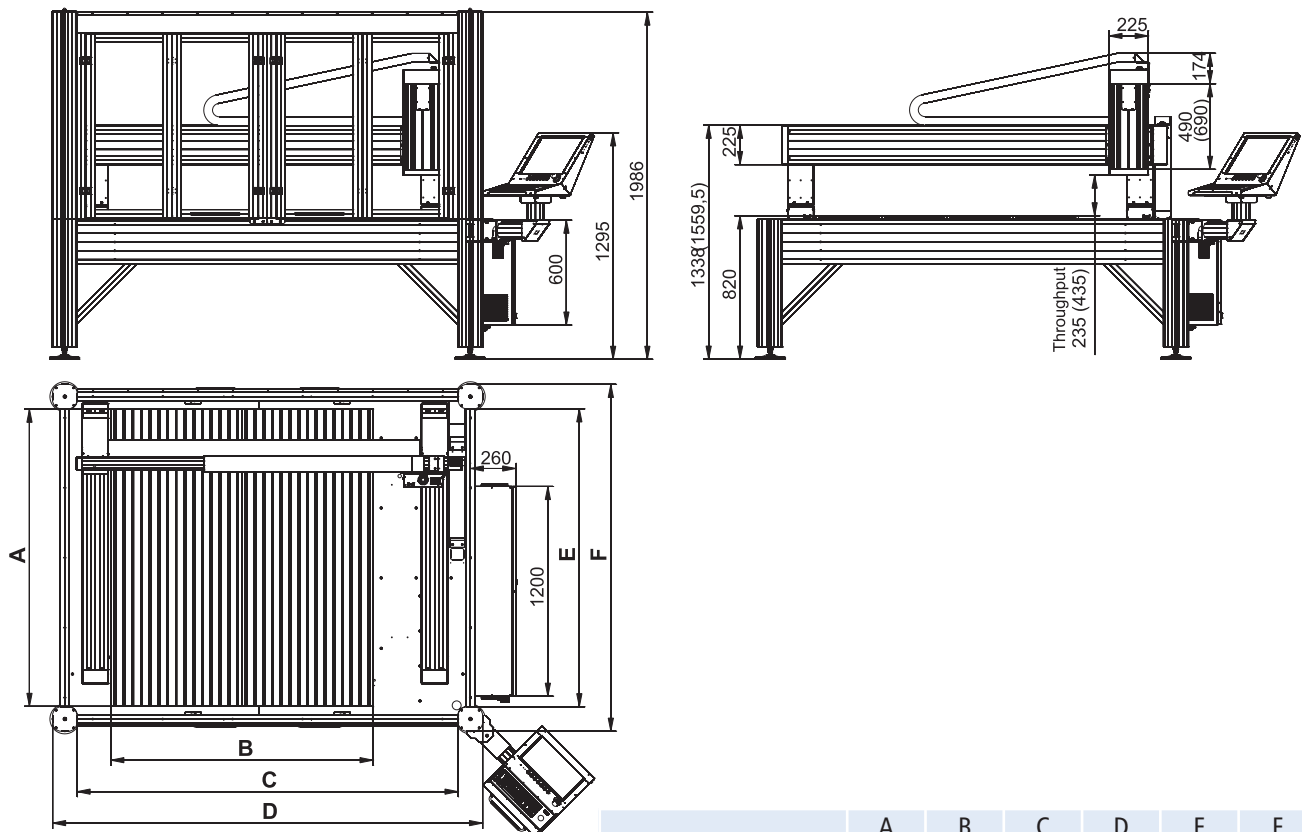
Options

- PC control console with 2 free PCI plug-ins (for use by external PCI hardware)
- Safety light curtain
- toothed belt drive
- Milling and engraving spindles
- SK11/SK20 automatic tool change stations
- Minimum quantity lubrication or CoolMin cooling system
- Vacuum clamping benches
- Suction device
- 4. Axis e. g. RDH series installation
- Version without hood
- Maximum 6 interpolated axes + 6 handling axes
- Portal gap 300 mm
- closed hood attachment

Setup

- Portal: mobile, bench: fixed

Dimensioned drawings/dimensions



	A	B	C	D	E	F
FlatCom XL 102/72	1300	1125	1804	2084	1304	1584
FlatCom XL 102/112	1700	1125	1804	2084	1704	1984
FlatCom XL 142/112	1700	1500	2179	2459	1704	1984
FlatCom XL 142/162	2200	1500	2179	2459	2204	2484
FlatCom XL 142/252	3050	1500	2179	2459	3100	3380

Flatbed and portal units



Flat bed unit with Z axis



Portal unit with Z axis

General note

Flatbed units as defined in the machine guideline are incomplete machines according to the modular system with processing paths of 250 to 1250 mm. Step motors (MS200HT), set for no-play, are used as spindle drives. Recirculating ball drives with a repeatability of ± 0.02 mm (positioning reproducibility) are used.

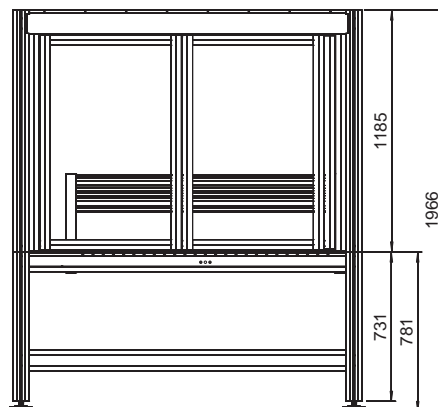
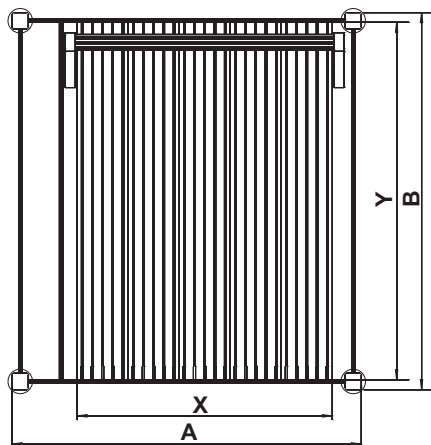
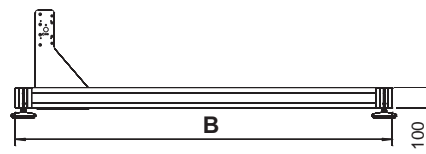
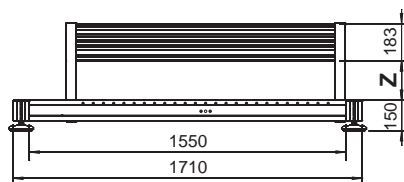
The linear guides used are the isel double track feeds, proven over many years, with no-play pre-stressed linear ball bearings and recirculating ball spindles with a repeatability of ± 0.02 mm.

All units are equipped with two limit switches per spindle.

The machining and positioning units are available in a number of versions and are characterised by smooth running and high process speeds. The use of high quality aluminium components with flat-milled surfaces achieves low weight and high accuracy.

isel X/Y/Z units are the ideal basis for setting up machines and systems for fitting and assembling, pressing and engraving, drilling and milling, milling and screwing, shaping and modelling, bonding and casting, soldering and welding, measuring and checking, sawing and cutting, etc..

Dimensioned drawings



Flatbed and portal units

X/Y flatbed units FB2

Part no.	Chassis A × B (mm)	Clamping surface X × Y (mm)	Process path (mm)	Z-Through- put (mm)
246203	1210 x 946	750 x 850	500 x 530	190
246203 2040	1210 x 1196	750 x 1100	750 x 530	
246203 2054	1210 x 1446	750 x 1350	1000 x 530	
246203 2067	1460 x 1446	1000 x 1350	850 x 780	
246203 2130	1710 x 1846	1250 x 1750	1250 x 1030	

All flatbed units are fitted with **16 × 4 mm recirculating ball drives** as standard



Z axes for flatbed units

Part no.	Lift (mm)	
230514	75	with 24V magnetic brake
230514 0400	160	with 24V magnetic brake

Sub-frames

Part no.	suitable for flatbed unit with clamping area:
248500 0027	850 x 750
248500 0040	1100 x 750
248500 0054	1350 x 750
248500 0067	1350 x 1000
248500 0130	1750 x 1250

Portal units PA2

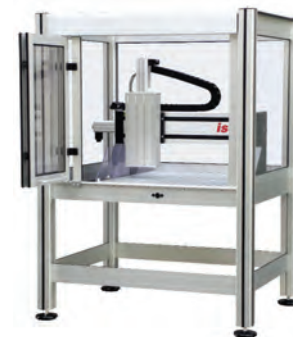
Part no.	Part no. (without motor)	Process path (mm)	Ball screw drive (mm)	Lift (mm)
242 402	242 409	280 x 490	16 x 4	75
243 402	243 409	280 x 490	16 x 4	without Z axis

Software

Part no.	
Z11 - 333 500 Z13 - 337 030	ProNC software for CAN-CNC controllers isy-CAM 2.5 Plus (only available in combination with a unit)

Options

- matched controller (e.g.: iMC-S8)
- Software modules for operation in CAM, CNC, and PLC applications
- Sub-frame
- Enclosure
- Spindle motors (see E18 *et seq.*)



Enclosures

Part no.	suitable for flatbed unit with clamping area:
248200 0000	850 x 750
248200 2040	1100 x 750
248200 2054	1350 x 750
248200 2067	1350 x 1000
248200 2130	1750 x 1250

Introduction

When developing our spindle motors, our main emphasis was on functionality, quality, and the optimum price structure. Our spindle motors are also particularly easy to maintain. The particularly slim lines and square housing cross-section allow installation in rows with minimum separation.

Our approach to electrical construction is to use an AC short circuit rotor with 2-pole windings in our motors, designed to DIN EN 60034. The insulation of the windings is produced according to heat class F. The motors are dynamically balanced to very fine tolerances, so that good running properties are achieved even at high speeds. In all, they cover a range of speeds from 3,000 to 30,000 rpm. All spindle motors are produced entirely in Germany, meet at least the criteria for IP54 protection class and are therefore approved even for areas where wood dust is present. In our product portfolio, in addition to spindle motors, you'll find all the leads you will need in various lengths and preset, reliable frequency converters for connecting to the controller. By integrating development, production, sales and service under one roof, we have very short procedures and have our own repair service which operates year-round, unlike many of our competitors. An extensive range of accessories, such as vacuum cleaning systems, minimum amount greasing systems, clamping rings, SK housings, tool changers and our unique, patented Coolmin system for optimum and economical tool cooling, without residues, round off our product portfolio.



iSA 500 with manual tool changer	E 19
iSA 750 with manual tool changer	E 20
iSA 1500 with manual tool changer	E 21
iSA 900 with automatic tool changer	E 22
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Universal milling spindles UFM 500 /1050	E 25
Engraving spindles	
CoolMin tool cooling system	E 26
SK 11/20/30 tool change station	E 27
Frequency converter, length measuring button, vacuum cleaning, motor leads	E 28
Overview of clamping rings and tool housings	E 29

Spindle motor

with manual tool changer

iSA 500



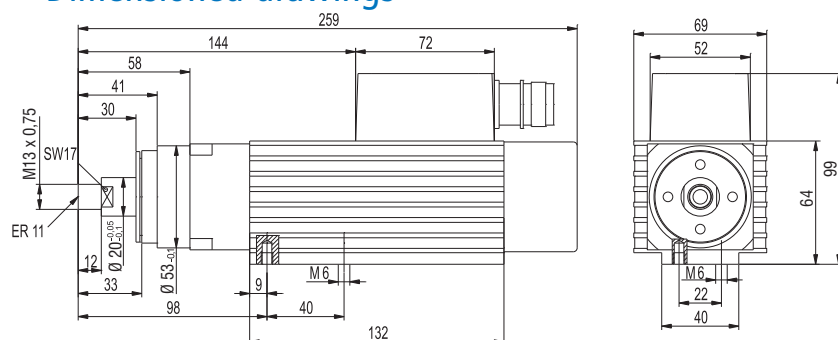
Features

- Robust 2-pole AC motor (asynchronous motor)
- Square shape, Protection class IP54, isolation class F
- Cast sign A side, aluminium cast B side
- Motor shaft to take ER 11 clamping rings
- Rated output 0.5 kW (S6-40% operation)
- Speed range 5,000 rpm. - 30,000 rpm.
- manual tool change
- M23 plug connection
- incl. ER 11 clamping ring, Ø 6 mm
- Clamping range Ø 1 mm – Ø 7 mm
- Intrinsic ventilation B-side
- Governed by frequency converter
- Spindle bearing: 2 bearings A-side
1 bearing B-side
- optional:
 - CoolMin® (internal and external)
 - Frequency converter
 - various clamping rings, mounting plates, lead lengths
 - Suction device

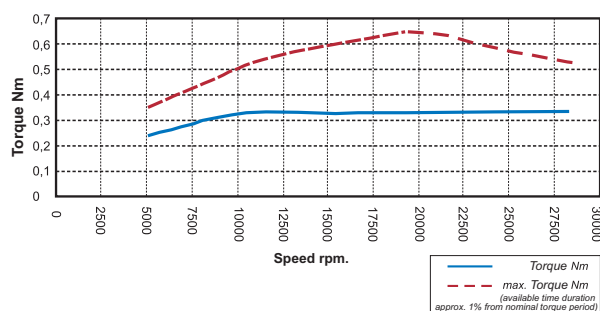
Technical specification

Description		iSA 500
Torque at nominal speed 18.000 rpm.	[Nm]	0.28
Speed	[rpm.]	5,000 to 30,000
Cut-off frequency	[Hz]	300
Number of poles		2
Rated voltage	[V]	230
Rated current	[A]	2.6
cos φ		0.75
S 6 = 40% rated output	[kW]	0.5
concentricity	[mm]	0.01
Weight	[kg]	2.8

Dimensioned drawings



Torque curves



Technical specifications subject to change.

Ordering information

iSA 500 spindle motor
Part no.: **477004 3130**

iSA 500 spindle motor
with converter and lead (8m)
Part no.: **310704 1611**

iSA 500 spindle motor with CoolMin®
Part no.: **477004 5130**

iSA 500 spindle motor with converter, lead
(8m) and CoolMin®
Part no.: **310704 1631**

LES 5 mounting plate
Part no.: **277014**

LES 6 mounting plate
Part no.: **277028 0008**

ICP/ICV mounting plate
Part no.: **280000 0046**

EuroMod/FlatCom mounting plate
Part no.: **277028**

- SKC 750 frequency converter see page **E28**
- M23 motor side leads see page **E28**
- Suction device for 38 mm hose see page **E28**
- Clamping ring set, ER11 type see page **E29**

Spindle motor

with manual tool changer

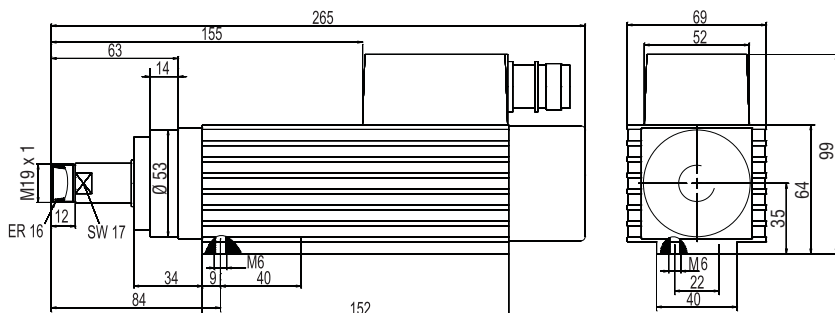
iSA 750



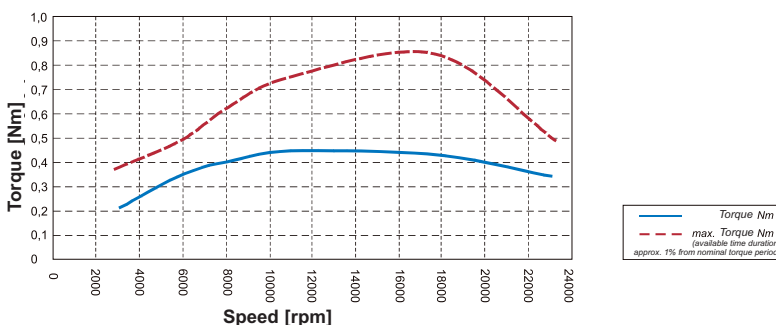
Technical specification

Description		iSA 750
Torque at rated speed 22.000 U/min.	[Nm]	0.34
Speed	[rpm.]	3,000 to 24,000
Cut-off frequency	[Hz]	300
Number of poles		2
Rated voltage	[V]	230
Rated current	[A]	3.4
cos φ		0.79
S 6 = 40% rated output	[kW]	0.75
Concentricity	[mm]	0.01
Weight	[kg]	2.6

Dimensioned drawings



Torque curves



Features

- Robust 2-pole AC motor (asynchronous motor)
- Square shape, Protection class IP54, isolation class F
- Steel sign A-side, Aluminium cast B-side
- Motor shaft to take ER 16 clamping rings
- Rated output 0.75 kW (S6-40% operation)
- Speed range 3,000 rpm. - 24,000 rpm.
- manual tool change
- M23 plug connection
- incl. ER16 clamping ring, Ø 6 mm
- Clamping range Ø 1mm – Ø 10 mm
- Intrinsic ventilation B-side
- Two precision bearings
- Speed control by frequency converter
- optional:
 - CoolMin® (internal and external)
 - Frequency converter
 - various clamping rings, mounting plates, lead lengths
 - Suction device

Ordering information

iSA 750 spindle motor
Part no.: **477008 3124**

iSA 750 spindle motor
with converter and lead (8m)
Part no.: **310708 1611**

iSA 750 spindle motor with CoolMin®
Part no.: **477008 5124**

iSA 750 spindle motor with converter, lead
(8m) and CoolMin®
Part no.: **310707 1631**

LES 5 mounting plate
Part no.: **277014**

LES 6 mounting plate
Part no.: **277028 0008**

ICP/ICV mounting plate
Part no.: **280000 0046**

EuroMod/FlatCom mounting plate
Part no.: **277028**

- SKC 750 frequency converter
see page **E28**
- M23 motor side leads
see page **E28**
- Suction device for 38 mm hose
see page **E28**
- Clamping ring set, ER16 type
see page **E29**

Technical specifications subject to change.

Spindle motor

with manual tool changer

iSA 1500



iSA 1500 with manual tool change

iSA 1500 with manual tool change and CoolMin tool cooling system

Features

- Robust 2-pole AC motor (asynchronous motor)
- Square shape, Protection class IP54, isolation class F
- Cast sign A and B side
- Motor shaft to take ER 20 clamping rings
- Rated output 1.5 kW (S6-40% operation)
- Speed range 5,000 rpm. - 20,000 rpm.
- manual tool change
- M23 plug connection
- incl. ER20 clamping ring, Ø 6 mm
- Clamping range Ø 2 mm – Ø 13 mm
- Intrinsic ventilation B-side
- Governed by frequency converter
- Spindle bearing: 2 bearings A-side
1 bearing B-side

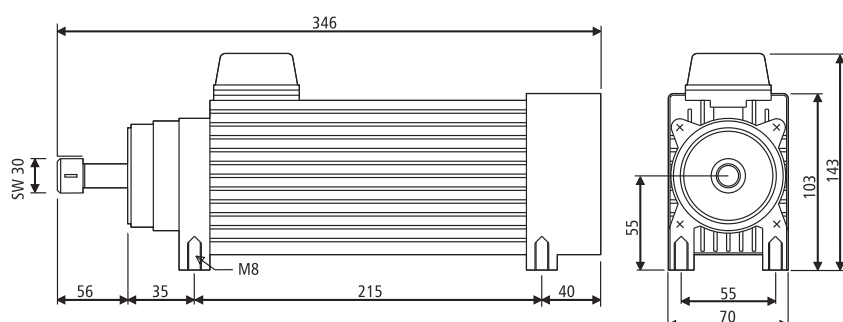
optional:

- CoolMin® (internal and external)
- Frequency converter
- various clamping rings, mounting plates, lead lengths
- Suction device
- 4-pole motor version to order

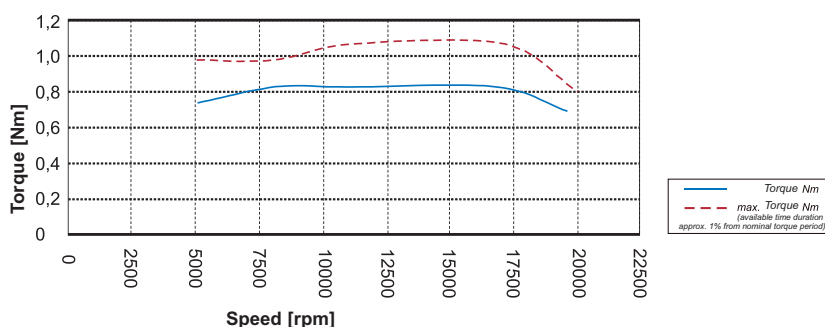
Technical specification

Description		iSA 1500
Torque at rated speed 20.000 U/min.	[Nm]	0.72
Speed	[rpm.]	5,000 to 20,000
Cut-off frequency	[Hz]	300
Number of poles		2
Rated voltage	[V]	230
Rated current	[A]	7.0
cos φ		0.85
S 6 = 40% rated output	[kW]	1,5
Concentricity	[mm]	0.01
Weight	[kg]	6.4

Dimensioned drawings



Torque curves



Technical specifications subject to change.

Ordering information

iSA 1500 spindle motor
Part no.: **477510 3120**

iSA 1500 spindle motor with converter
Part no.: **310610 3614**

iSA 1500 spindle motor with CoolMin®
Part no.: **477510 5120**

iSA 1500 spindle motor with converter and CoolMin®
Part no.: **310610 3634**

LES 5 mounting plate
Part no.: **277028 0003**

EuroMod/FlatCom mounting plate
Part no.: **277028 0002**

- CoolMin® external with hose see page **E26**
- SKC 1500 frequency converter see page **E28**
- M23 motor side leads see page **E28**
- Suction device for 80mm hose see page **E28**
- Clamping ring set, ER20 type see page **E29**

Spindle motor

with automatic tool changer



iSA 900 with automatic tool change

iSA 900

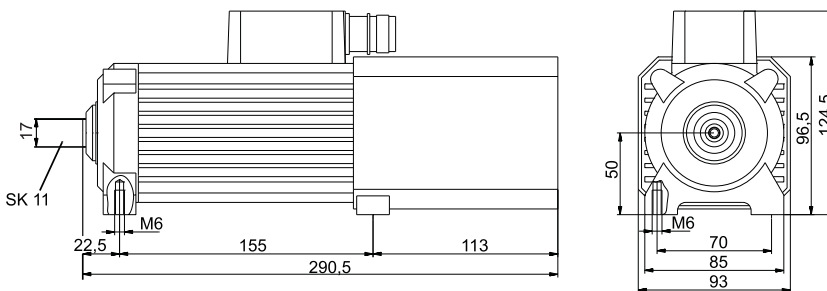
Features

- Robust 2-pole AC motor (asynchronous motor)
- Square shape, Protection class IP55, isolation class F
- Cast sign A and B side
- Rated output 0.9 kW (S6-40% operation)
- Speed range 6,000 rpm. - 24,000 rpm.
- Automatic tool change with SK 11 tool housing and ER 11 clamping ring, \varnothing 6 mm
- M23 plug connection
- Clamping range \varnothing 1 mm – \varnothing 7 mm
- separately driven fan B-side
- Governed by frequency converter
- Two precision bearings
- SK 11 tool changer pneumatic (7.5 bars)
- optional:
 - CoolMin® (external)
 - Frequency converter
 - Tool changing station
 - various clamping rings, mounting plates, lead lengths

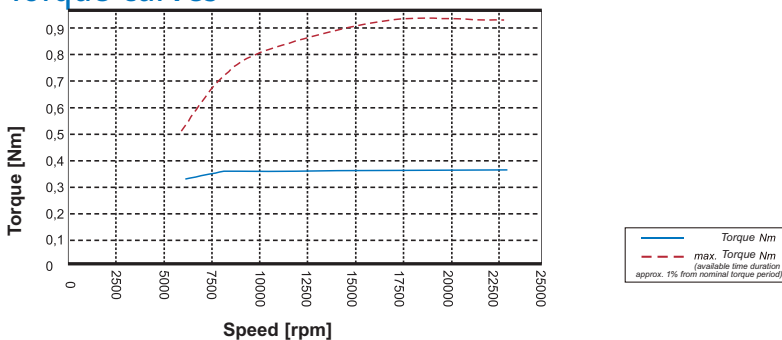
Technical specification

Description		iSA 900
Torque at rated speed 18,000 rpm.	[Nm]	0.37
Speed	[rpm.]	6,000 to 24,000
Cut-off frequency	[Hz]	400
Number of poles		2
Rated voltage	[V]	230
Rated current	[A]	3.25
$\cos \phi$		0.84
S 6 = 40% rated output	[kW]	0.9
Concentricity	[mm]	0.01
Weight	[kg]	5.8

Dimensioned drawings



Torque curves



Ordering information

iSA 900 spindle motor
Part no.: **477009 3324**

iSA 900 spindle motor
with converter and lead (8m)
Part no.: **310709 3612**

LES 5 mounting plate
Part no.: **277028 0003**

- CoolMin® external with hose see page **E26**
- 5× SK 11 tool change stations see page **E27**
- 8× SK 11 tool change stations see page **E27**
- SK 11 tool housing see page **E27**
- SKC 750 frequency converter see page **E28**
- M23 motor side leads see page **E28**
- Clamping ring set, ER11 type see page **E29**

Subject to technical changes.

Spindle motor

with automatic tool changer

iSA 2200



iSA 2200 with automatic tool change

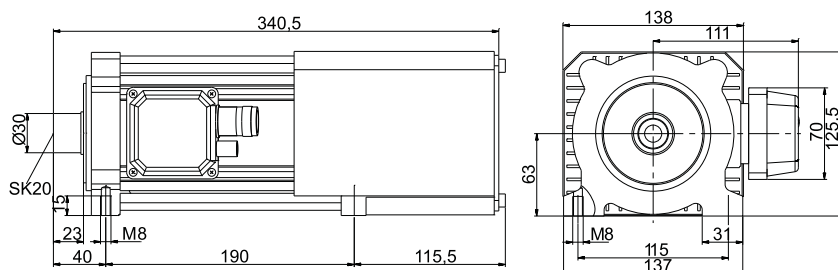
Technical specification

Description		iSA 2200
Torque at rated speed 18,000 rpm.	[Nm]	1.26
Speed	[rpm.]	5,000 to 20,000
Cut-off frequency	[Hz]	280
Number of poles		2
Rated voltage	[V]	230
Rated current	[A]	7.6
cos ϕ		0.84
S 6 = 40% rated output	[kW]	2.2
Concentricity	[mm]	0.01
Weight	[kg]	14.6

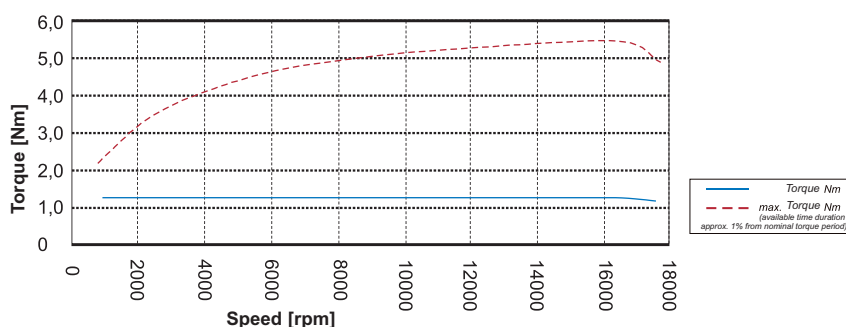
Features

- Robust 2-pole AC motor (asynchronous motor)
- Square shape, Protection class IP54, isolation class F
- Cast sign A and B side
- Motor shaft to take ER 20 clamping rings
- Rated output 2.2 kW (S6-40% operation)
- Speed range 5,000 rpm. - 20,000 rpm.
- Automatic tool change with SK 20 tool housing and ER16 clamping ring, \varnothing 6 mm
- M23 plug connection
- Clamping range \varnothing 2 mm – \varnothing 13 mm
- SK 20 tool changer pneumatic (7.5 bars)
- separately driven fan B-side
- Governed by frequency converter
- Two precision bearings
- optional:
 - CoolMin® (external)
 - Frequency converter
 - Tool changing stations
 - various clamping rings
 - Suction device
 - 4-pole motor version to order

Dimensioned drawings



Torque curves



Technical specifications subject to change.

Ordering information

iSA 2200 spindle motor
Part no.: **477022 3320**

iSA 2200 spindle motor with converter and lead (8m)
Part no.: **310722 3621**

LES 5 mounting plate
Part no.: **277028 0005**

EuroMod/FlatCom mounting plate
Part no.: **277028 0004**

- CoolMin® external with hose see page **E26**
- 4 × SK 20 tool change stations see page **E27**
- 5 × SK 20 tool change stations see page **E27**
- SK 20 tool housing see page **E27**
- SKC 4000 frequency converter see page **E28**
- M23 motor side leads see page **E28**
- Clamping ring set, ER20 type see page **E29**

Spindle motor

with automatic tool changer

iSA 3600

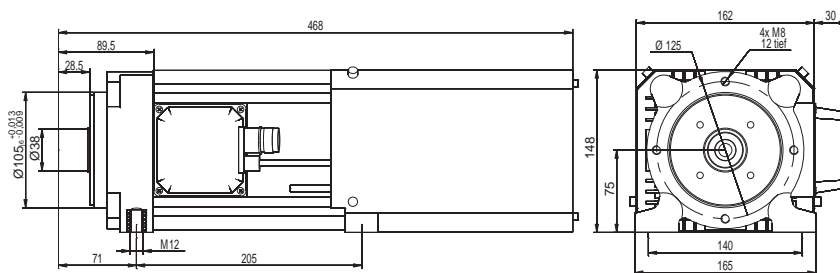


iSA 3600 with automatic tool change

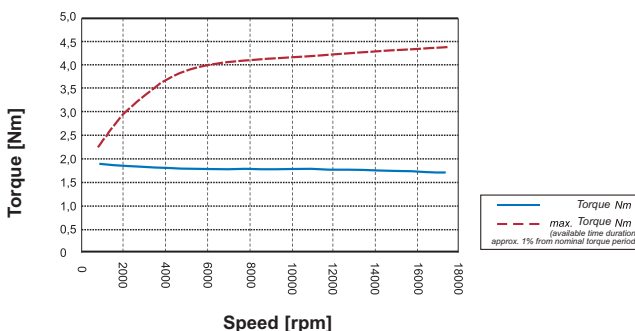
Technical specification

Description		iSA 3600
Torque at rated speed 18,000 rpm.	[Nm]	4.5
Speed	[rpm.]	6,000 to 18,000
Cut-off frequency	[Hz]	300
Number of poles		2
Rated voltage	[V]	3 × 400
Rated current	[A]	5.4
cos φ		0.87
S 6 = 40% rated output	[kW]	3.6
Concentricity	[mm]	0.01
Weight	[kg]	23.0

Dimensioned drawings



Torque curves



Features

- Robust 2-pole AC motor (asynchronous motor)
- Square shape. Protection class IP54 Isolation class F
- Steel sign A side, Cast sign B side
- Motor shaft to take ER 32 clamping rings
- Rated output 3.6 kW (S6-40% operation)
- Speed range 6,000 rpm. - 18,000 rpm.
- Automatic tool change with SK 30 tool housing and ER 32 clamping ring, Ø 6 mm
- Clamping range Ø3 mm – Ø 20 mm
- Intrinsic ventilation B-side
- Two precision bearings
- Speed control by frequency converter
- optional:
 - CoolMin® (external)
 - Frequency converter
 - Tool changing station
 - various clamping rings mounting plates and lead lengths

Ordering information

iSA 3600 spindle motor
Part no.: **477822 3600**

iSA 3600 spindle motor with converter and lead (8m)
Part no.: **310736 3615**

LES 5 mounting plates
Part no.: **277028 0009**

- CoolMin® external with hose see page **E26**
- 4 × SK 30 tool change stations see page **E27**
- 5 × SK 30 tool change stations see page **E27**
- SK 30 tool housing see page **E27**
- SKC 4000 frequency converter see page **E28**
- M23 motor side leads see page **E28**
- Clamping ring set, type ER 32 see page **E29**

Technical specifications subject to change.

Universal milling spindles UFM 500 /1050.

Engraving spindle

Uni milling motors



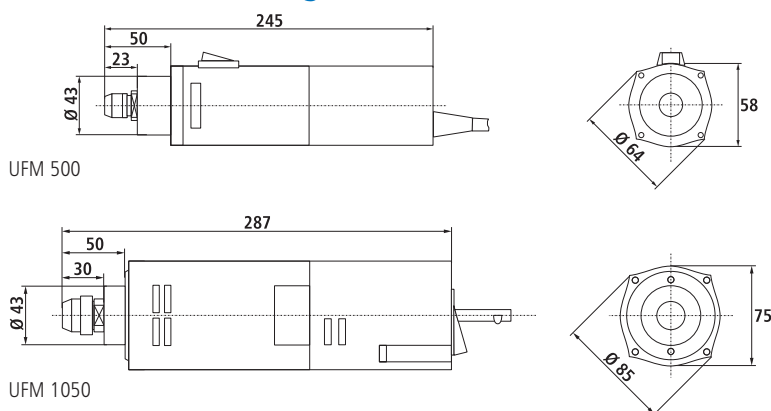
UFM 1050

UFM 500

Technical specification

	Part no.	Load speed rpm	Voltage V	Efficiency %	Power consumption W	power output W	Torque Nm
UFM 500	420003 0500	22,600	230	68	500	345	0.14
UFM 500-11	420003 0501	22.600	115	68	500	345	0.14
UFM 1050	420003 1050	21.000	230	71	1050	720	0.32
UFM 1050-11	420003 1051	21.000	115	71	1050	720	0.32

Dimensioned drawings



UFM 500

UFM 1050

Features

- Load-independent working speed with Tacho control electronics
- Smooth start for no-backlash acceleration to rated speed
- Blocking protection
- Protective isolation
- PTC thermal monitoring
- Rated output 345 W/720 W
- Speed range 11,000 rpm to 25,000 rpm
- Torque 0.14 Nm (at 22,600/21,000 rpm)
- Rated voltage 230V
- collar
- Clamping range \varnothing 1 mm – \varnothing 6.35/8 mm
- Speed control
- [Stable double ball bearing](#)
- Weight: 1.9/2.1 kg

UFM 500

- Rated input **500 W**
- Power output **345 W**
- Torque **0,14 Nm**

UFM 1050

- Rated input **1050 W**
- Power output **720 W**
- Torque **0,32 Nm**

Clamping blocks

Clamping blocks \varnothing 43mm	Part no.
Ra 100 and Ra 150 mm fixings	290 902
Ra 100 mm fixing	290 903
Ra 125 mm fixing	290 904

Clamping rings

Clamping ring sets	Part no.
for UFM 500 (\varnothing 1.0 - 6.35 mm)	239110
for UFM 1050 (\varnothing 1.0 - 8.0 mm)	239112 0000

Clamping nut

clamping nut	Part no.
for UFM 500	239 111
for UFM 1050	239 112

Carbon brushes

Carbon brushes, VE = 2 units.	Part no.
for UFM 500	420 003 9000
for UFM 1050	420 003 9001

Engraving spindle with mech. height compensation



Engraving spindle
42V, 150 W, 60,000 rpm.
sealing air cooling
Suction preparation

including holder, corresponding frequency converter, mechanical height compensation and clamping ring \varnothing 3mm

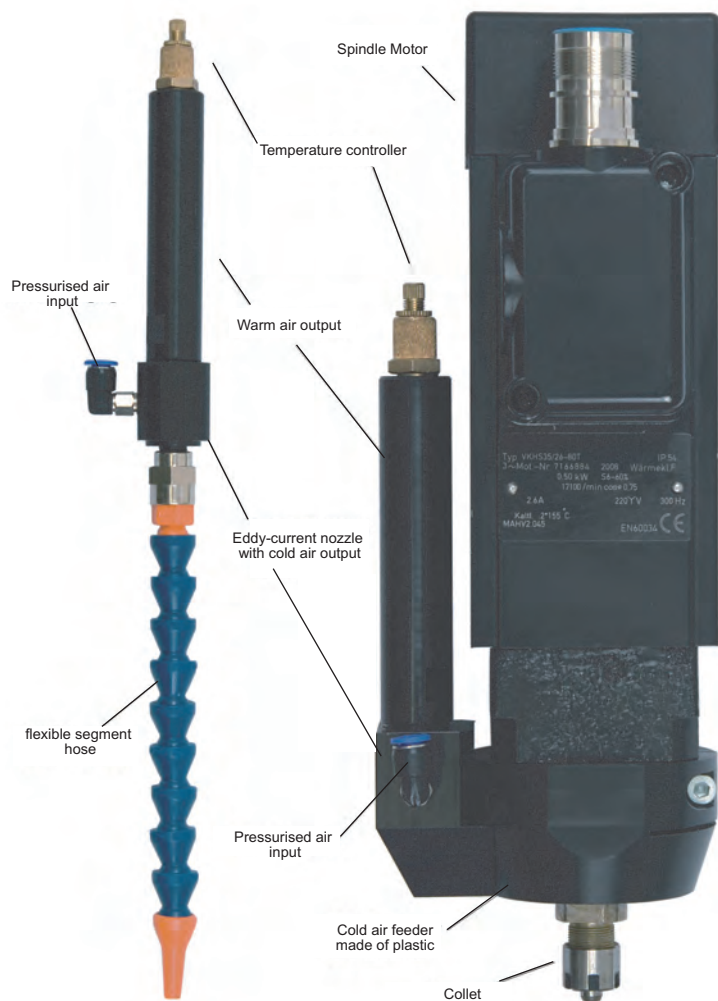
Part no. **310802 1300**

Technical specifications subject to change.

Tool cooling system

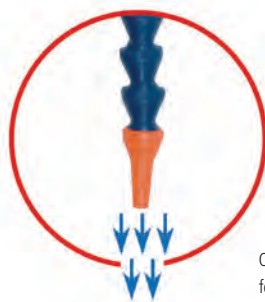
COOLMin

Functional principle

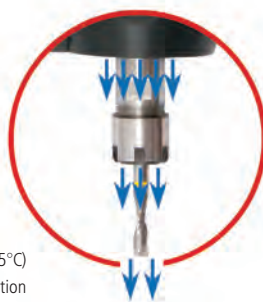


CoolMin external
with hose
Part no.: **239011 0119**

CoolMin internal



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



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 spray cooling with minimal amounts leads to unwanted side effects such as dirt building up, sticking of chips to the tool or to the surface and, depending on the material also an attack on its structure.

With the aforementioned patented cooling methods providing very good tool and surface cooling, the side effects are negligible.

The chips are dry and, according to the material, can be vacuumed or blown off easily.

The surface is protected and the direct tool cooling (also suitable for tools with internal cooling) achieves very long working lives for the tools.

The cooling method is based on a jet of cold air, which works on the eddy current principle and divides the flow into warm and cold air.

To operate the system, all that is required is compressed air (6 to 10 bars).

Technical specification:

- Compressed air feed: 6-10 bars
- Cooling air output up to a max. -25°C
- Hot air exhaust: up to a max. 70°C
- Air consumption approx. 150 l/min
- special servicing unit with 1µm filter
- No maintenance cold air jet

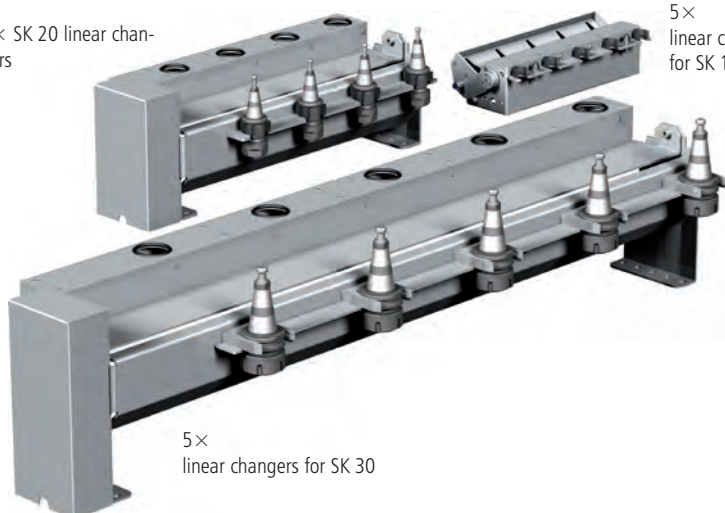
Technical specifications subject to change.

Change stations

SK 11/20/30

4× SK 20 linear changers

5× linear changers for SK 11



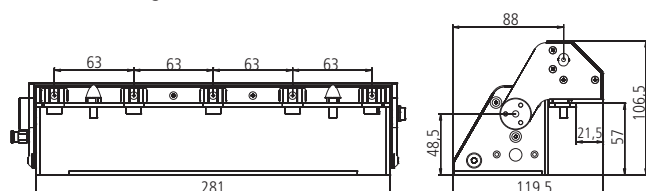
5× linear changers for SK 30

Features

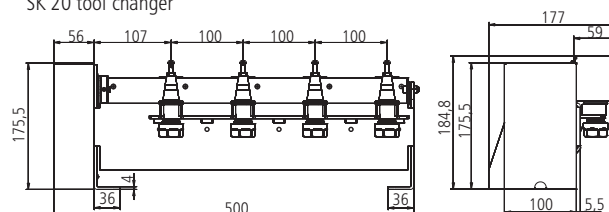
- Simple, functional tool changer for SK11, SK20 and SK30
- Pneumatic rotary cylinder and end position monitoring for safe changing
- Control via 5/2-way valve with integration in the safety circuit
- Low-maintenance stainless steel design (powder-coated aluminium)
- Variable positioning on the machine bench

Dimensioned drawings

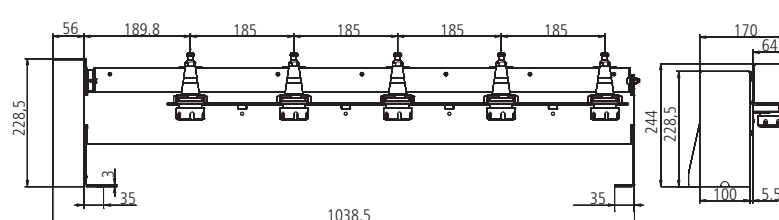
SK 11 tool changer



SK 20 tool changer



SK 30 tool changer



Ordering information

SK 11 tool change station for iSA 900

5×, without hood
Part no.: **239011 0054**

8×, without hood
Part no.: **239011 0084**

5×, without hood + pneumatics
Part no.: **239011 0053**

8×, with hood + pneumatics
Part no.: **239011 0083**

SK 20 tool change station for iSA 2200

4×, with hood + pneumatics
Part no.: **239011 0041**

5×, without hood + pneumatics
Part no.: **239011 0050**

10×, with hood + pneumatics
Part no.: **239011 0100** (to order)

SK 30 tool change station for iSA 3600

4×, with hood + pneumatics
Part no.: **239011 0045**

5×, without hood + pneumatics
Part no.: **239011 0055**

Tool holders

SK 11 for clamping rings, type ER 11
Part no.: **239111 0001**

SK 20 for clamping rings, type ER 20
Part no.: **239172 0020**

SK 30 for clamping rings, type ER 32
Part no.: **239130**

Technical specifications subject to change.

Frequency converter, motor leads and vacuum cleaning system

Frequency converter



SKC 750 frequency converter, suitable for iSA 500, iSA 750 + iSA 900
Part no.: **311707 6000**

SKC 1500 frequency converter, suitable for iSA 1500
Part no.: **311715 6000**

SKC 4000 frequency converter, suitable for iSA 2200 + iSA 3600
Part no.: **311740 6500**

- Compact, pulse width modulated equipment in three output classes
- Input voltage, 230V AC, single phase (SKC 750/1500) or 400V AC, three phase (SKC 4000)
- Three phase, vector controlled control voltage. Frequency.1500 Hz
- Fast spindle braking with highly stressed, integrated brake resistance in the sub-frame
- Turn-off EMC filter
- Programmable inputs and outputs, relay output
- User-friendly control unit for configuring spindles
- 95 operating and display parameters for both simple and demanding applications (e. g. spindle energy sink in no load)
- Protection class: IP 20
- Control types: PLC; 0...10 V; 0...20 mA; with control unit; CAN bus (extra module required)
- Approvals: CE; C-Tick; UL

Length measurement button and motor leads



Length measuring button for measuring tool lengths
Part no.: **239099 0001**

- 8-wire
3 × 0.75 mm² + 1 × PE + 2 × (2 × 0.34 mm²)
- drag chain compatible
- Outer screening and separately screened in 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)

Vacuum cleaning system

... for iSA 500 + iSA 750 spindles

- prepared for hose 38 mm
- manual opening

Part no.: **239012 0000**

... for iSA 1500 spindle

- prepared for hose 80 mm
- manual opening

Part no.: **239012 0001**

... for iSA 2200 spindle

- prepared for hose 80 mm
- Öffnung automatisch

Art.-Nr.: **239012 0002**

Dust cover closed



Air line diameter
Internal 80 mm

Dust cover open

Technical specifications subject to change.

Overview of clamping rings and tool housings

Tool housings



SK 11 for clamping rings, type ER 11
Part no.: **239111 0001**

SK 20 for clamping rings, type ER 20
Part no.: **239172 0020**

SK 30 for clamping rings, type ER 32
Part no.: **239130**

The following clamping rings are also able to clamp shafts exactly that are reduced in diameter by 1.0 mm:

Clamping rings type ER 11 Clamping ring set

for iSA 500 and iSA 900

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

for spindle motor	Type	Ø (mm)	Part no.
iSA 500 / iSA 900	ER 11	1.0 - 7.0	239170 0001



The following clamping rings are also able to clamp shafts exactly that are reduced in diameter by 0.5 mm:

Clamping rings type ER 16

for iSA 750

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

Clamping rings type ER 20

for iSA 1500 and iSA 2200

Ø (mm)	Part no.:
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

Clamping rings type ER 32

for iSA 3600

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

Clamping collet sets

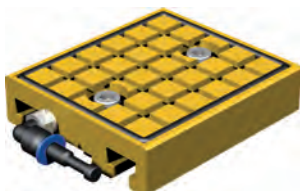
for spindle motor	Type	Ø (mm)	Part no.
iSA 750	ER 16	1,0 - 10	239171 0001
iSA 1500 / iSA 2200	ER 20	2.0 - 13	239172 0001
iSA 3600	ER 32	3.0 - 20	239130 0000

Technical specifications subject to change.

Vacuum clamping plates

VAKUFIT[®]

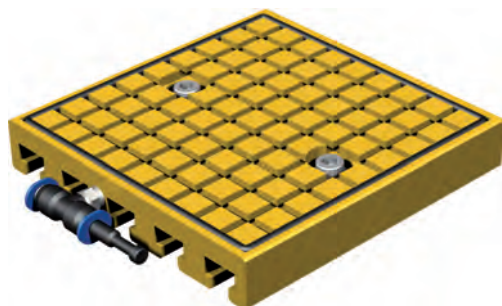

VakuFit - S
L 75 × W 41.5 × H 20 mm
Part no.: 216601 0015



VakuFit - S
L 75 × W 85 × H 20 mm
Part no.: 216601 0016



VakuFit - S
L 125 × W 75 × H 20 mm
Part no.: 216601 0011



VakuFit - S
L 125 × W 125 × H 20 mm
Part no.: 216601 0012

VakuFit - S

Vacuum clamping plates made from naturally anodised aluminium allow a flexible clamping system on any T-key plate. Sealing is provided by a foamed 4 mm sealing cord, which can be laid freely according to the keyway raster. The hose connections to the suction line are designed for 6 mm hoses.

Depending on the material properties of the workpiece for clamping, up to 6 suction lines (e.g. 125 × 75) are connected to a pneumatic vacuum pump. This achieves up to an 80% vacuum with compressed air at 5.5 bar. The system is suited for small clamping tasks up to clamping large size plates or components.

Option:

- Clamping plates gold anodised

Pneumatic vacuum pump including vacuum meter.

Pressure reducer, servicing unit with filter, hose, vacuum filter

Part no.: 216600 0009

Pneumatic vacuum pump with energy saving system including vacuum meter.

Pressure reducer, servicing unit with filter, hose, vacuum filter

Part no.: 216600 0008

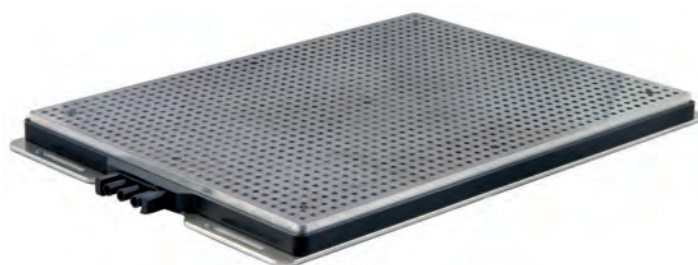
Vacuum clamping plates

VAKUFIT®

Sample diagram



Multiple connection for high volume flow and optimum vacuum distribution



All vacuum plates can be arranged next to each other over a large area.

Part number	Description	DIN	Clamping surface
216601 0017	VT 2115	A5	210 x 150 mm
216601 0018	VT 3021	A4	300 x 210 mm
216601 0019	VT 4230	A3	420 x 300 mm
216601 0020	VT 6042	A2	600 x 420 mm

216601 0028	Rotary slide valve pump (6.0 m ³ /h) for DIN A4 and A5
216601 0030	Rotary slide valve pump (10.0 m ³ /h) for DIN A2 and A3

216600 0027	Servicing kit for rotary slide valve pump 6.0 m ³ /h
216600 0028	Servicing kit for rotary slide valve pump 10.0 m ³ /h

Technical specifications subject to change.

VakuFit - L

The hole raster plates for vacuum clamping have little need for a vacuum pump. The plates are almost free from distortion and therefore well suited for engraving work and clamping plate material.

Unlike other vacuum clamping alternatives, materialmilling tasks up to a certain proportion of the total surface area are no problem and components remain securely clamped. Material end stops can be produced simply with 5 mm alignment pins in the hole raster borings. The hole raster rubber mats act as padding and can be used several times.

As well as our standard plates, we also meet individual orders for special tasks, up to complete packages.

Note

The holding force is proportional to the covered area, the coefficient of friction and the pressure difference.

To increase the coefficient of friction, a hole rubber mat is included in the deliverables.

Deliverables

- 1 × connection adapter
- 1 × 68 mm open jaw wrench
- 1 × hole rubber mat
- 1 × rubber mat to cover exposed holes
- 3 × connection hoses
- Operating instructions

Introduction



A division within isel Germany AG, **isel Robotik** presents a cross-section of its product portfolio of automation components from **robots, prealigners, linear units, end effectors** and accessories for the **semi-conductor industry**, made in Germany.

The company's Robotics Division has been operating for more than 8 years in the semiconductor sector. Sales began in 2005 with only a few types of robots and prealigners. Current components for the semiconductor industry cover all OEM customer needs in the semi-conductor sector. Since 2005, **over 500 robot systems have entered field service successfully**. In this connection, our customers mention the **long working life** of individual products as a plus. Our all-in-one designs allow handling of wafers and masks in a class 1 clean room environment.

For these processes, in addition to clean room capability, **high precision** and reliability are paramount. Because these requirements affect the entire production process in the chip industry, stringent specifications also apply for the handling components. The handling components are a shining example of why isel Germany AG has a reputation in the market place: for very high quality, short lead times, best service and a very good price/performance ratio.

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Visit our website at www.iselrobotik.com

Overview

Wafer handling robots with 2-link arm	IWH F-1	E 34
Wafer handling robots with 2-link arm in heavy duty design	IWH F-1	E 35
Wafer handling robots Heavy duty design with 3-link arm	IWH F-1	E 36
Wafer handling robots with 2-link arm and heavy duty housing	IWH F-2	E 37
Wafer handling robots with 2-link arm and housing in heavy duty design	IWH F-2	E 38
Wafer handling robots with 3-link arm and housing in heavy duty design	IWH F-2	E 39
Wafer handling robots with dual arm	IWH F-3	E 40
Vacuum robots with dual arm	IWH F-5	E 41
Vacuum elevator Linear Track		E 42
End effectors		E 43
Prealigners		E 44
Controller & accessories		E 45

Wafer handling robots with 2-link arm

IWH F-1



Figure:
IWH TA10S10 F-1

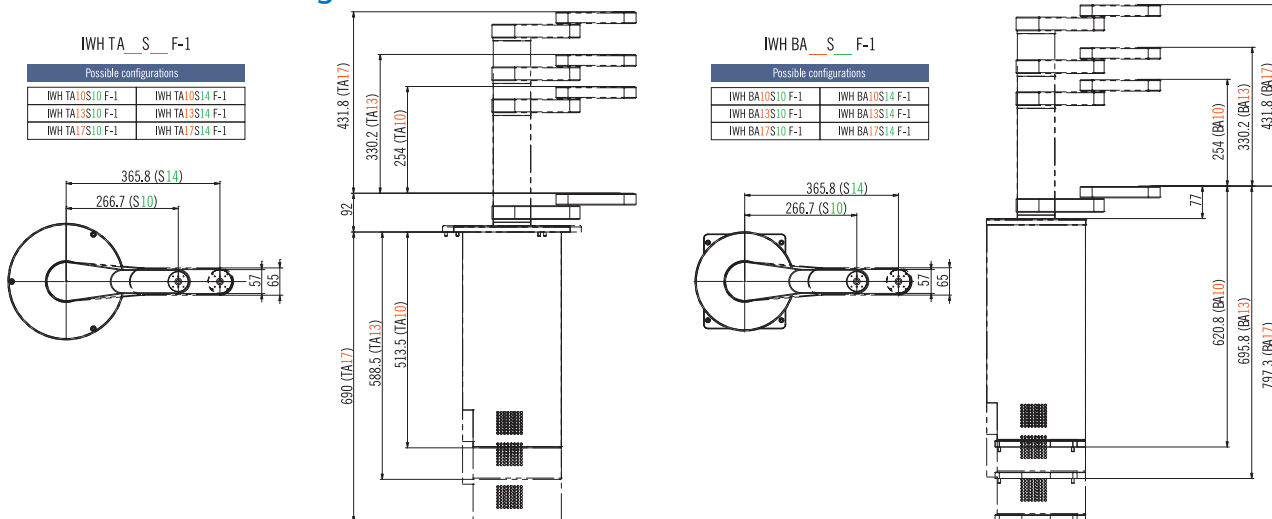
Features

- excellent structural rigidity
- extremely high failure safety and precision
- optionally installed above (TA) or installed below (BA)
- customised adaptations possible
- absolute (digital) or incremental encoder
- simple connection of prealigners, linear track and other peripherals to the robot controller
- optional high end controller for controlling complex systems
- including Robot Control Centre (RCC)
- Class 1 clean room-compatible
- made in Germany

Technical specification

Description		IWH F-1
Repeatability	T	±0.02°
	R	±0.03 mm
	Z	±0.03 mm
Work area	Z	10", 13", 17"
	radial	10", 14"
	theta	450°
Payload on a joint		0.75 kg
Max. speed	T	360°/s
	R	1,000 mm/s
	Z	450 mm/s
Mains voltage		110 / 230 V AC
Control interface		RS-232 [DB9], option: Ethernet [RJ-45]
Interface for peripherals		RS-485 [RJ-45], RJ-11

Dimensioned drawings



Wafer handling robots

with 2-link arm in heavy duty design

IWH F-1



Figure:
IWH TA10S10HD F-1

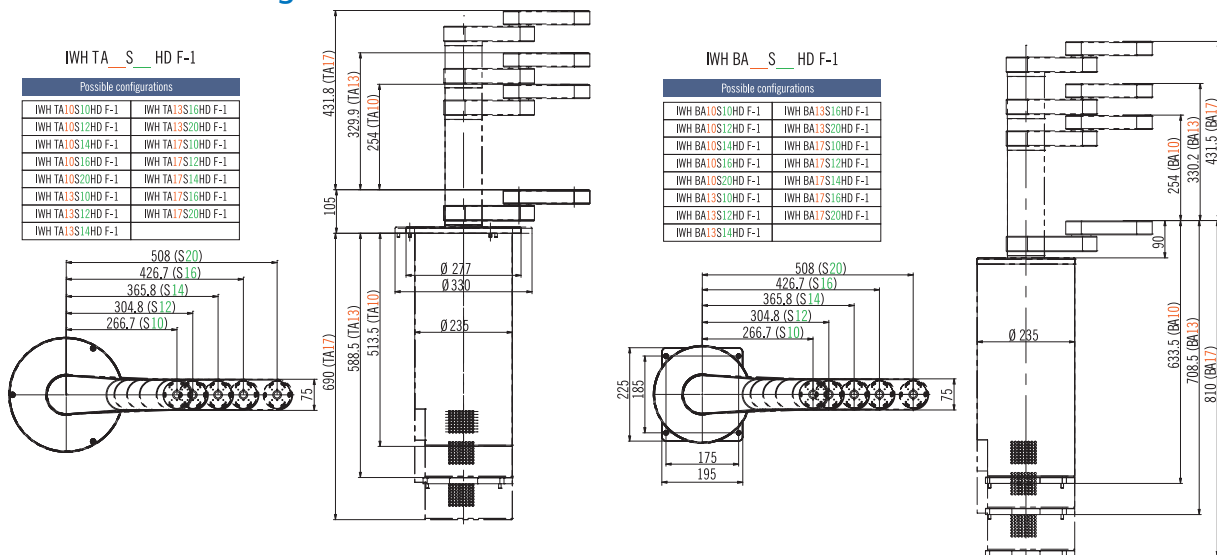
Features

- excellent structural rigidity
- extremely high failure safety and precision
- optionally installed above (TA) or installed below (BA)
- customised adaptations possible
- absolute (digital) or incremental encoder
- simple connection of prealigners, linear track and other peripherals to the robot controller
- optional high end controller for controlling complex systems including Robot Control Centre (RCC)
- Class 1 clean room-compatible
- made in Germany

Technical specification

Description		IWH F-1
Repeatability	T	±0.02°
	R	±0.03 mm
	Z	±0.03 mm
	Z	10", 13", 17"
Work area	radial	10", 12", 14", 16", 20"
	theta	450°
Payload on a joint		2.75 kg
Max. speed	T	360°/s
	R	1,000 mm/s
	Z	450 mm/s
Mains voltage		110/230 V AC
Control interface		RS-232 [DB9], option: Ethernet [RJ-45]
Interface for peripherals		RS-485 [RJ-45], RJ-11

Dimensioned drawings



Wafer handling robots

Heavy duty design with 3-link arm

IWH F-1



Figure:
IWH TA10S16 F-1

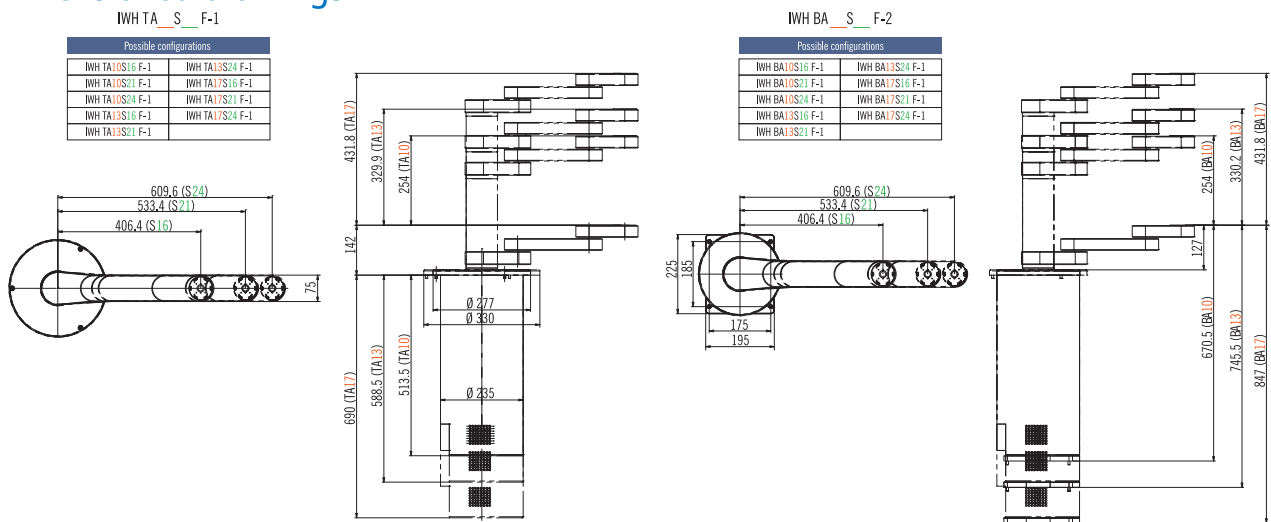
Features

- excellent structural rigidity
- extremely high failure safety and precision
- optionally installed above (TA) or installed below (BA)
- customised adaptations possible
- absolute (digital) or incremental encoder
- simple connection of prealigners, linear track and other peripherals to the robot controller
- optional high end controller for controlling complex systems including Robot Control Centre (RCC)
- Class 1 clean room-compatible
- made in Germany

Technical specification

Description		IWH F-1
Repeatability	T	±0.02°
	R	±0.03 mm
	Z	±0.03 mm
Work area	Z	10", 13", 17"
	radial	16", 21", 24"
	theta	450°
Payload on a joint		2.75 kg
Max. speed	T	360°/s
	R	1,000 mm/s
	Z	450 mm/s
Mains voltage		110/230 V AC
Control interface		RS-232 [DB9], option: Ethernet [RJ-45]
Interface for peripherals		RS-485 [RJ-45], RJ-11

Dimensioned drawings



Wafer handling robots

with 2-link arm and heavy duty housing

IWH F-2



Figure:
IWH TA13S10 F-2

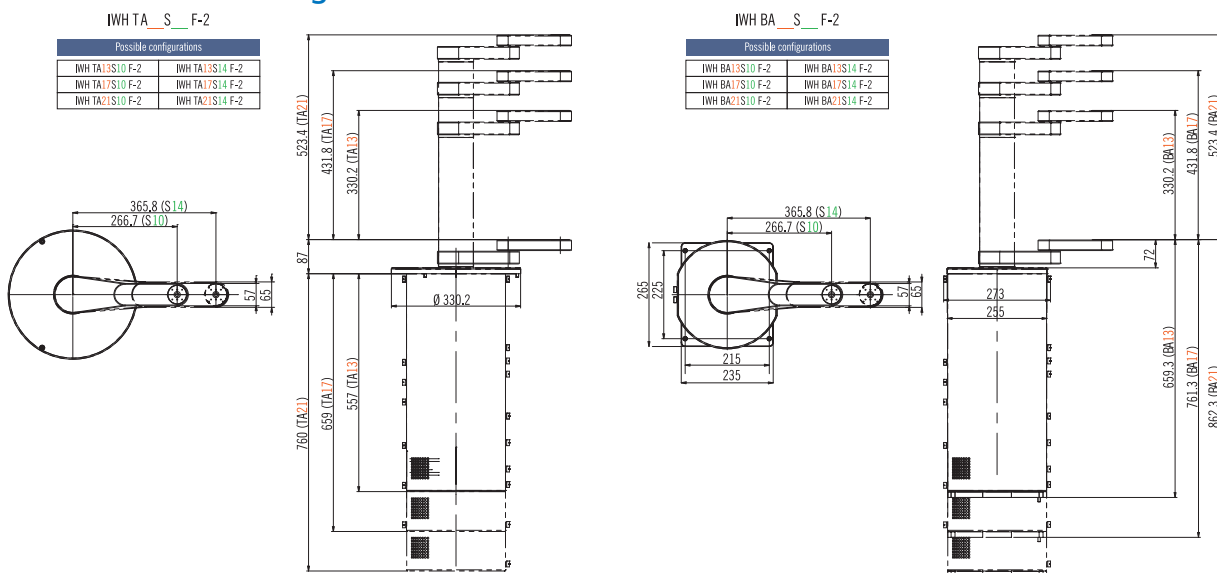
Features

- excellent structural rigidity
- extremely high failure safety and precision
- optionally installed above (TA) or installed below (BA)
- customised adaptations possible
- absolute (digital) or incremental encoder
- simple connection of prealigners, linear track and other peripherals to the robot controller
- optional high end controller for controlling complex systems
- including Robot Control Centre (RCC)
- Class 1 clean room-compatible
- made in Germany

Technical specification

Description		IWH F-2
Repeatability	T	±0.02°
	R	±0.03 mm
	Z	±0.03 mm
Work area	Z	13", 17", 21"
	radial	10", 14"
	theta	450°
Payload on a joint		0.75 kg
Max. speed	T	360°/s
	R	1,000 mm/s
	Z	450 mm/s
Mains voltage		110/230 V AC
Control interface		RS-232 [DB9], option: Ethernet [RJ-45]
Interface for peripherals		RS-485 [RJ-45], RJ-11

Dimensioned drawings



Wafer handling robots

with 2-link arm and housing in heavy duty design

IWH F-2



Figure:
IWH TA13S10HD F-2

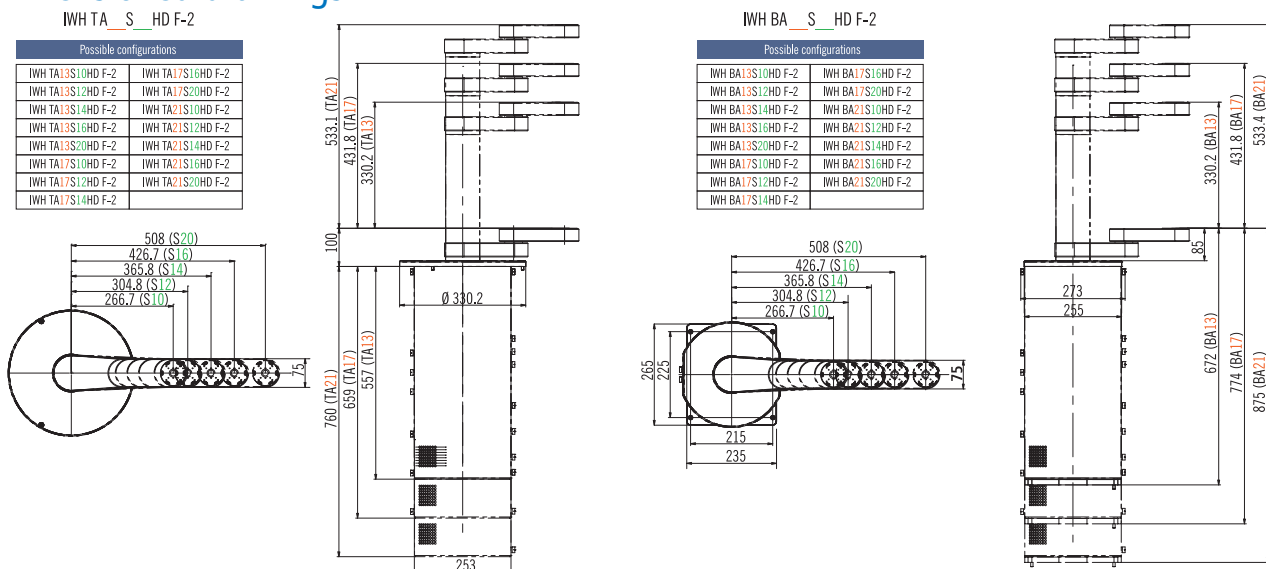
Features

- excellent structural rigidity
- extremely high failure safety and precision
- optionally installed above (TA) or installed below (BA)
- customised adaptations possible
- absolute (digital) or incremental encoder
- simple connection of prealigners, linear track and other peripherals to the robot controller
- optional high end controller for controlling complex systems including Robot Control Center (RCC)
- Class 1 clean room-compatible
- made in Germany

Technical specification

Description		IWH F-2
Repeatability	T	±0.02°
	R	±0.03 mm
	Z	±0.03 mm
	Z	13", 17", 21"
Work area	radial	10", 12", 14", 16", 20"
	theta	450°
Payload on a joint		2.75 kg
Max. speed	T	360°/s
	R	1,000 mm/s
	Z	450 mm/s
Mains voltage		110/230 V AC
Control interface		RS-232 [DB9], option: Ethernet [RJ-45]
Interface for peripherals		RS-485 [RJ-45], RJ-11

Dimensioned drawings



Wafer handling robots

with 3-link arm and housing in heavy duty design

IWH F-2



Figure:
IWH TA13S16 F-2

Features

- excellent structural rigidity
- extremely high failure safety and precision
- optionally installed above (TA) or installed below (BA)
- customised adaptations possible
- absolute (digital) or incremental encoder
- simple connection of prealigners, linear track and other peripherals to the robot controller
- optional high end controller for controlling complex systems including Robot Control Center (RCC)
- Class 1 clean room-compatible
- made in Germany

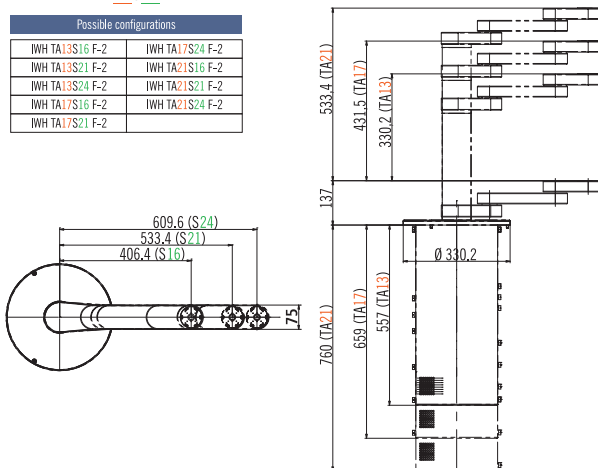
Technical specification

Description		IWH F-2
Repeatability	T	±0.02°
	R	±0.03 mm
	Z	±0.03 mm
Work area		13", 17", 21"
	radial	16", 21", 24"
	theta	450°
Payload on a joint		2.75 kg
Max. speed	T	360°/s
	R	1,000 mm/s
	Z	450 mm/s
Mains voltage		110 / 230 V AC
Control interface		RS-232 [DB9], Option: Ethernet [RJ-45]
Interface for peripherals		RS-485 [RJ-45], RJ-11

Dimensioned drawings

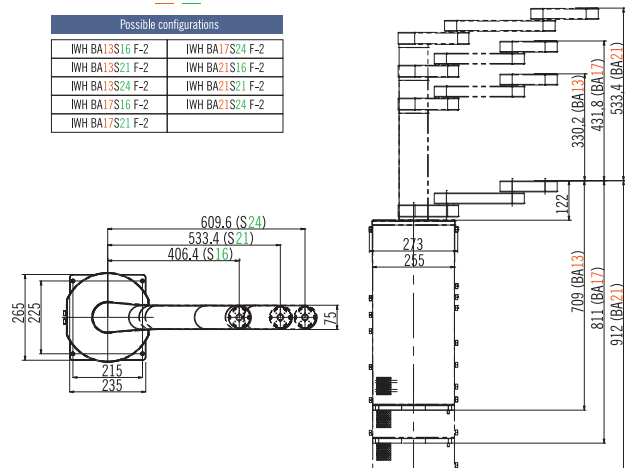
IWH TA_S_F-2

Possible configurations	
IWH TA13S16 F-2	IWH TA17S24 F-2
IWH TA13S21 F-2	IWH TA21S16 F-2
IWH TA13S24 F-2	IWH TA21S21 F-2
IWH TA17S16 F-2	IWH TA21S24 F-2
IWH TA17S21 F-2	



IWH BA_S_F-2

Possible configurations	
IWH BA13S16 F-2	IWH BA17S24 F-2
IWH BA13S21 F-2	IWH BA21S16 F-2
IWH BA13S24 F-2	IWH BA21S21 F-2
IWH BA17S16 F-2	IWH BA21S24 F-2
IWH BA17S21 F-2	



Wafer handling robots

with dual arm

IWH F-3



Figure:
IWH F-3

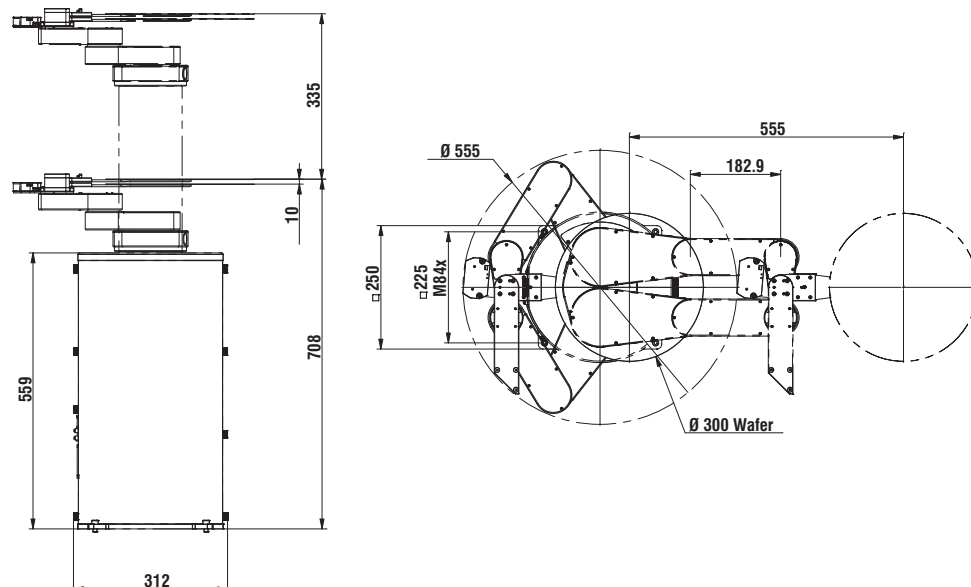
Features

- excellent structural rigidity
- Handling wafers up to 300 mm
- extremely high reliability and accuracy
- simple connection of a linear track to the robot controller
- Real time motion control
- very quiet in operation
- brushless, no maintenance servo motors with low moment of inertia
- no-play harmonic drive[®] transmission
- Absolute encoder
- Versatile communication interfaces
- Class 1 clean room-compatible
- MTBF: > 50,000 operating hours
- including Robot Control Centre (RCC)

Technical specification

Description	IWH F-3	
Repeatability	T	$\pm 0.02^\circ$
	R	± 0.03 mm
	Z	± 0.03 mm
Work area	Z	13" (330.2 mm)
	radial	14.4" (365.8 mm)
	theta	450°
Payload on a joint	max. 1.25 kg/arm	
Max. speed	T	360°/s
	R	1,100 mm/s
	Z	425 mm/s
Mains voltage	110/230 V AC	
Control interface	RS-232 [DB9], Option: Ethernet [RJ-45]	
Interface for peripherals	RS-485 [RJ-45], RJ-11	

Dimensioned drawings



Wafer handling vacuum robots with dual arm

IWH F-5



Diagram: IWH F-5

Features

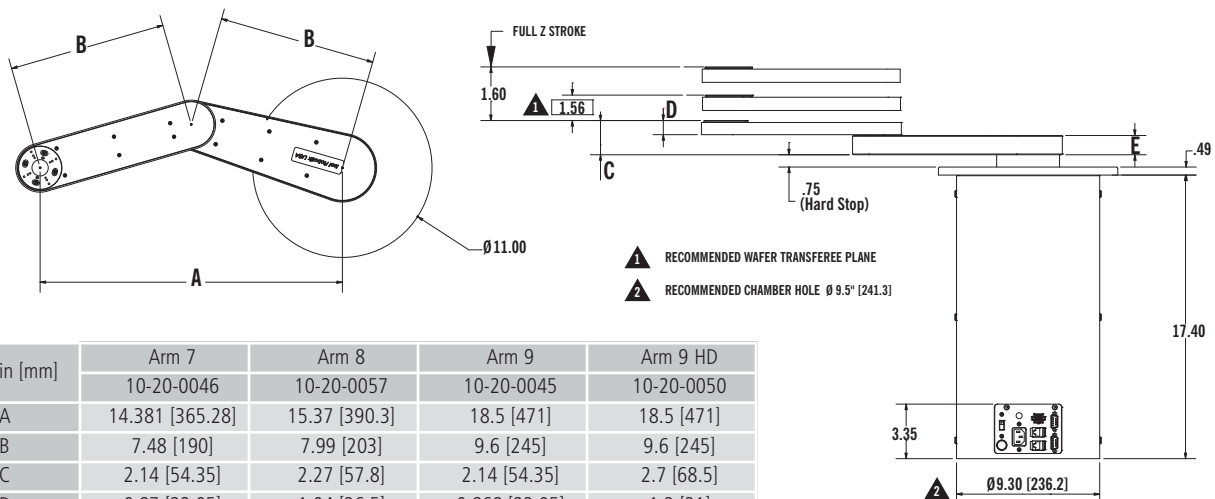
- Control area & installation configuration to industry standard
- Handling wafers up to 300 mm
- high precision, user-configurable 14", 16" and 18" arms
- extremely high reliability and precision
- Ferrofluid vacuum seal
- Vacuum < 5×10 Torr
- Real time motion control
- very quiet in operation
- brushless, no maintenance servo motors with low moment of inertia
- Absolute encoder
- Wide range of communication interfaces
- Class 1 clean room-compatible
- MTBF: > 50,000 operating hours

Technical specification

Description	IWH F-5	
Repeatability	T	±0.02°
	R	±0.05 mm
	Z	±0.05 mm
Work area	Z	1.5" (38.4 mm)
	radial	14" (355.6 mm)
	theta	380°
Payload on a joint	1.0 to 2.2 kg	
Leakage	<5E-9 Torr	
Weight	21.8 kg	

Description	IWH F-5	
Max. speed	T	360°/s
	R	500 mm/s
	Z	100 mm/s
Mains voltage	110 VAC	
Control interface	RS-232 [DB9], Option: Ethernet [RJ-45]	
Max. temperature	150° C (302° F)	
Max. operating temperature	80° C (176° F)	
Visible materials	Al 6061, stainless steel, Ferrofluid, Viton	
Type of installation	above/below the vacuum chamber	
Configuration	Modular, exchangeable arms	

Dimensioned drawings



in [mm]	Arm 7	Arm 8	Arm 9	Arm 9 HD
	10-20-0046	10-20-0057	10-20-0045	10-20-0050
A	14.381 [365.28]	15.37 [390.3]	18.5 [471]	18.5 [471]
B	7.48 [190]	7.99 [203]	9.6 [245]	9.6 [245]
C	2.14 [54.35]	2.27 [57.8]	2.14 [54.35]	2.7 [68.5]
D	0.87 [22.05]	1.04 [26.5]	0.868 [22.05]	1.2 [31]
E	1.181 [30]	1.14 [29]	1.18 [30]	1.3 [32.5]

Vacuum elevator / Linear track

Vacuum elevator



Diagram:
Vacuum elevator

Features

- Class 1 cleanroom compatible
- Absolute encoder
- Repeatability: 0.001"
- Maximum vertical lift: 406 mm (16")
- Maximum vacuum: 1.0×10 Torr
- AC servo motors
- Weight: 18.2 kg
- Payload: 5.5 kg
- Surface: Aluminium, stainless steel
- Cassette detection sensor
- Z-lift: 304.8 mm (12")

Linear Track



Diagram:
Linear track with
isel IWH-BA series wafer hand-
ling robot installed above

General

The ILT linear track series can be integrated seamlessly into your system's handling area owing to its flexibility. Tracks are controlled in conjunction with our IWH series robots. This combination of linear tracks with isel robots makes for a very effective system and thus provides high throughputs.

Depending on the application, installation can be below or to the side of the robot. The use of brushless servo motors makes linear tracks very responsive dynamically, low maintenance and quiet in operation.

Features

- High speed and dynamic response
- Lengths freely definable according to use
- Installation at the side or from below
- Very good structural rigidity
- Extremely high reliability and precision
- Simple connection to the robot controller
- Drive by linear or spindle motor
- Made in Germany

Technical specification

Description		
Repeatability	K	± 0.02 mm
Standard spindles work area	K	21", 42", 62"
Payload		for all isel robots
Max. speed	K	1.200 mm/s
Max. acceleration	K	1.500 mm/s ²
Power supply		110 / 230 V AC
Control interface		RS-232 [DB9], Option: Ethernet [RJ-45]

End effectors



Paddle EE with scanner



Horseshoe EE without scanner



Dual EE with thru beam scanner



Exclusion zone vacuum with scanner



Edge grip with scanner



Vacuum analyser unit

Features

- for wafer sizes up to 12" (300 mm)
- modular design
- low intrinsic weight
- high rigidity
- favourable price/performance ratio
- PTFE-coated

Options

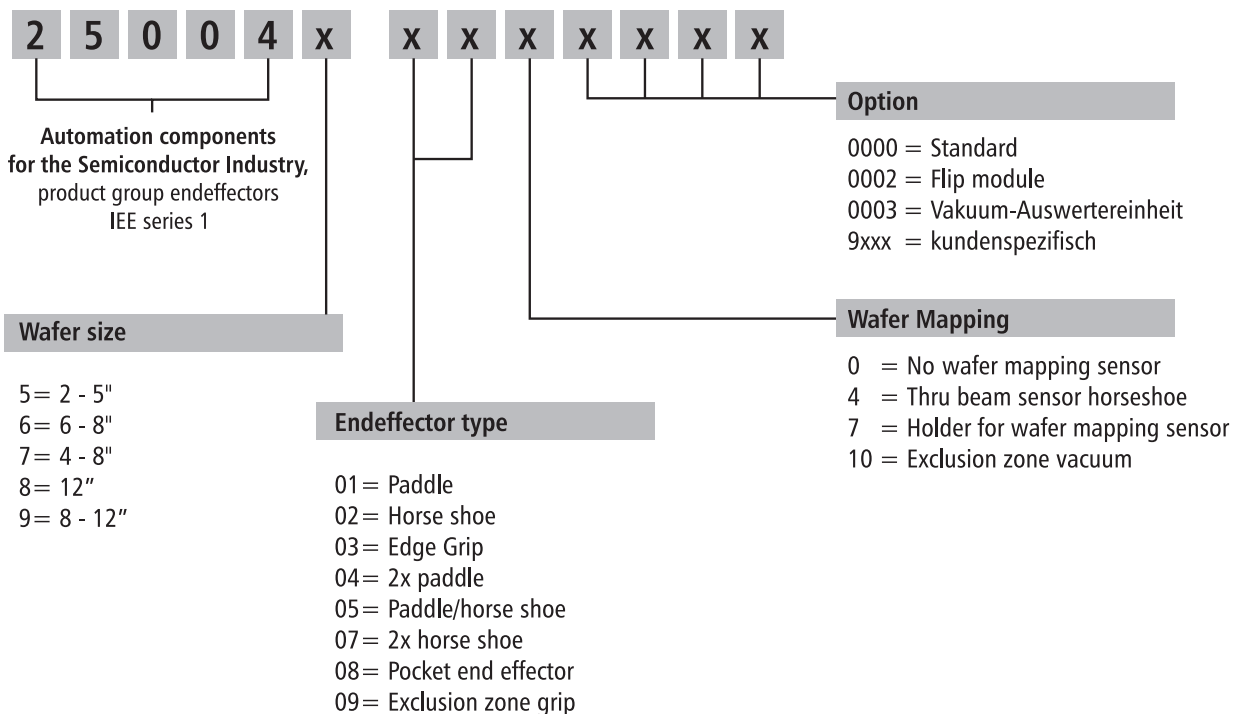
- various wafer mapping sensors
- various surface finishes
- Special designs
 - Pocket EE
 - Friction wafer
 - Edge grip EE
 - Exclusion zone grip EE
 - Exclusion zone vacuum EE
 - Multiple EE

Accessories

Vacuum analyser unit

- high response pattern
- freely programmable
- Resolution 0.001 bar
- Integrated end effectors
- two-colour display
- can be used with all vacuum end effectors

Ordering key



Controller and accessories

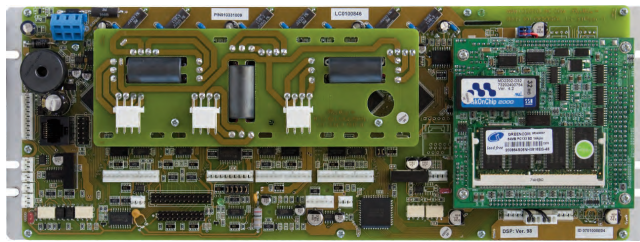


Figure: internal controller

Features

IRC 331 internal controller

- IWH series 1, IWH-HD series 2, IVR series, prealigners
- Incremental sensor control
- 3+1 axes, can be retrofitted
- 4 inputs, 3 outputs
- RS232 and Ethernet data transfer
- RCC software
- optional:
 - I/O expansion
 - Hand terminal



Figure:
external controller



Figure: RCC software

Features

IRC 331 external controller ex

- IWH series 1, IWH-HD series 2, IVR series, prealigners
- Incremental sensor control
- 3+1 axes, can be retrofitted
- 4 inputs, 3 outputs
- RS232 and Ethernet data transfer
- RCC software
- optional:
 - I/O expansion
 - Hand terminal

Accessories

IFM-300-3 flip module

- precise turning of wafers with highly accurate positioning through mechanical endstops
- universal end effector adapter
- Mapping sensor
- DC motor with transmission unit
- electrical damping at the end of rotary path
- continuously variable speeds

Hand terminal

- optimum support for teaching an isel wafer handler
- isel wafer handler-optimised keyboard layout
- Terminal function
- Teach function
- Diagnostic function
- RS-485

IMS wafer mapping sensors

- Light source laser or LED
- Measurement distance 38/56 mm (1,5"/2,2")
- Sensor flexibly configurable



Diagram: Flip module



Diagram: IHT hand terminal



Diagram: IMS-EX43(73)QS



Diagram: IMS-MDW1