SW Technology People

PRODUCT SUMMARY

TECHNICAL DATA

hspeed TECHNOLOGY QUBE construction dDrum architecture SDrum architecture

THE TECHNOLOGY PEOPLE

There are quite many who build machining centres. But only a few take such intensive and successful care of the entire technological demand of your project like we do.

The highest priority is given to deliver the best economical and sustainable solution for your manufacturing task. Which machine model ends up being the right one and how it will be applied most effectively, depends on your requirements for materials to be machined, quality and production volumes.

We proclaim to be 'Technology People'. This is more than building machine tools. Competent counsel in all technological and commercial questions from 'A' like Automation to 'Z' like Z-axis thrust. All topics are addressed before the first chip falls. We provide cost-per-part calculations and we are flexible in crafting your project finance. So your decision for SW as your preferred business partner is based on dependable data.

We develop our machines from the inside out to make sure it is tailored for its future effective use in your plant.

BA 3

For machining of workpieces made of aluminium, cast iron, titanium or steel

BA 3X

For machining of workpieces made of aluminium, cast iron, titanium or steel

BA 4

For machining of workpieces made of aluminium, cast iron, titanium or steel

BA 400

For machining of workpieces made of aluminium, cast iron, titanium or steel

BA 600

For machining of workpieces made of cast iron, titanium or steel

BA 7

For machining of workpieces made of cast iron, cast steel and steel

BM 1250

For machining of workpieces made of aluminium, cast iron or steel

BA W04

For machining of workpieces made of aluminium and not-magnetic material

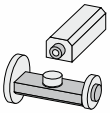
BA W06

For machining of workpieces made of aluminium and not-magnetic material

BA 3

The new BA 3 series continue the development and progress represented by the monobloc in combination with the 3-axis unit, double swivel table and 2 or 4 horizontal spindles for our machines with 300 mm spindle distance. The knowledge gained by the achievements made in the machining accuracies, in contrast to those MCs of the same size but C-frame design, resulted in many demanding projects being successfully completed. The BA 342 with 4 spindles at 150 mm distance is best suited for mass production of smaller parts for the automotive or other industries. Equipped with one or two SW-manufactured torque motor driven rotary tables, with either 2 or 4 satellites, they are the most advanced 5-axis MCs worldwide.

BA**311**



■ Working range

X-axis	550 mm
Y-axis (tp)	500 mm (750 mm)
Z-axis	375 mm
Spindle distance	-

■ Workpiece carrier

Swivel carrier 0/180°	-
Fixture plate A-axis	ø 575 mm x 830 mm
Load capacity A-axis	max. 2 x 360 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	32 kW / 72 Nm

■ Feed drive

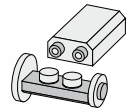
Rapid traverse X / Y / Z	75 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 15 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	40 (64 / 80)
Max. tool dimension	ø 160 mm x 275 mm
Chip-to-chip time	approx. 2.5 s

■ Dimensions / Weight

Total weight	approx. 8,500 kg
Transport dimensions W x H x L	2.45 m x 2.85 m x 3.35 m



■ Working range

X-axis	300 mm
Y-axis (tp)	500 mm (750 mm)
Z-axis	375 mm
Spindle distance	300 mm

■ Workpiece carrier

Swivel carrier 0/180°	-
Fixture plate A-axis	ø 575 mm x 830 mm
Load capacity A-axis	max. 360 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	2 x 32 kW / 2 x 72 Nm

■ Feed drive

Rapid traverse X / Y / Z	65 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 15 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

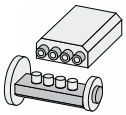
■ Tool magazine

Capacity	2 x 20 (2 x 32 / 2 x 40)
Max. tool dimension	ø 160 mm x 275 mm
Chip-to-chip time	approx. 2.5 s

■ Dimensions / Weight

Total weight	approx. 8,500 kg
Transport dimensions W x H x L	2.45 m x 2.85 m x 3.35 m

BA**341**



■ Working range

X-axis	150 mm
Y-axis (tp)	500 mm (750 mm)
Z-axis	375 mm
Spindle distance	150 mm

■ Workpiece carrier

Swivel carrier 0/180°	-
Fixture plate A-axis	ø 575 mm x 830 mm
Load capacity A-axis	max. 360 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A40
Speed range	1 – 20,000 rpm
Power / Torque (40% duty cycle)	4 x 18 kW / 4 x 17 Nm

■ Feed drive

Rapid traverse X / Y / Z	55 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 13 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	4 x 15 (4 x 24 / 4 x 30)
Max. tool dimension	ø 125 mm x 275 mm
Chip-to-chip time	approx. 2.75 s

■ Dimensions / Weight

Total weight	approx. 8,500 kg
Transport dimensions W x H x L	2.45 m x 2.85 m x 3.35 m

Working range

X-axis	550 mm
Y-axis (tp)	450 mm (725 mm)
Z-axis	375 mm
Spindle distance	-

Workpiece carrier

Swivel carrier 0/180°	ca 3.0 s
Fixture plate A-, U-axis	ø 475 mm x 830 mm
Load capacity A-, U-axis	max. 2 x 360 kg

Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	32 kW / 72 Nm

Feed drive

Rapid traverse X / Y / Z	75 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 15 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

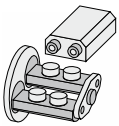
Tool magazine

Capacity	40 (64 / 80)
Max. tool dimension	ø 160 mm x 275 mm
Chip-to-chip time	approx. 2.5 s

Dimensions / Weight

Total weight	approx. 9,500 kg
Transport dimensions W x H x L	2.45 m x 2.85 m x 3.65 m

BA322



■ Working range

X-axis	300 mm
Y-axis (tp)	450 mm (725 mm)
Z-axis	375 mm
Spindle distance	300 mm

■ Workpiece carrier

Swivel carrier 0/180°	approx. 3.0 s
Fixture plate A-, U-axis	ø 475 mm x 830 mm
Load capacity A-, U-axis	max. 2 x 360 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	2 x 32 kW / 2 x 72 Nm

■ Feed drive

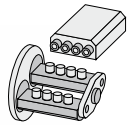
Rapid traverse X / Y / Z	65 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 15 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	2 x 20 (2 x 32 / 2 x 40)
Max. tool dimension	ø 160 mm x 275 mm
Chip-to-chip time	approx. 2.5 s

■ Dimensions / Weight

Total weight	approx. 9,500 kg
Transport dimensions W x H x L	2.75 m x 2.85 m x 3.65 m



Working range

X-axis	150 mm
Y-axis (tp)	450 mm (725 mm)
Z-axis	375 mm
Spindle distance	150 mm

Workpiece carrier

Swivel carrier 0/180°	approx. 3.0 s
Fixture plate A-, U-axis	ø 475 mm x 830 mm
Load capacity A-, U-axis	max. 2 x 360 kg

Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A40
Speed range	1 – 20,000 rpm
Power / Torque (40% duty cycle)	4 x 18 kW / 4 x 17 Nm

Feed drive

Rapid traverse X / Y / Z	55 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 13 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

Tool magazine

Capacity	4 x 15 (4 x 24 / 4 x 30)
Max. tool dimension	ø 125 mm x 275 mm
Chip-to-chip time	approx. 2.75 s

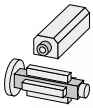
Dimensions / Weight

Total weight	approx. 9,500 kg
Transport dimensions W x H x L	2.75 m x 2.85 m x 3.65 m

BA 3X

For the BA 3 series we have added the letter X as the identifier for the single table version. These MCs combine all features of the 3 series twin table versions, i.e. the monobloc and the box-in-box 3 axis unit. They are equipped with a four sided fixture beam which can be loaded and unloaded despite ongoing machining on its other faces. In the BA 321 version, with the SW-manufactured 5-axis rotary table, carrying 2 or 4 satellites, you will have a very cost effective, highly productive and very accurate machine.

BA**31X**



■ Working range

X-axis	550 mm
Y-axis (tp)	500 mm (750 mm)
Z-axis	375 mm
Spindle distance	-

■ Workpiece carrier

Swivel carrier 0/180°	1.0 s
Fixture plate A-axis	ø 600 mm x 750 mm
Load capacity A-axis	max. 600 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm
Power / Torque (40% duty cycle)	32 kW / 72 Nm

■ Feed drive

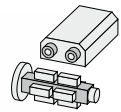
Rapid traverse X / Y / Z	75 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 15 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	40 (64 / 80)
Max. tool dimension	ø 160 mm x 275 mm
Chip-to-chip time	approx. 2.5 s

■ Dimensions / Weight

Total weight	approx. 8,500 kg
Transport dimensions W x H x L	2.45 m x 2.85 m x 3.35 m



■ Working range

X-axis	300 mm
Y-axis (tp)	500 mm (750 mm)
Z-axis	375 mm
Spindle distance	300 mm

■ Workpiece carrier

Swivel carrier 0/180°	1.0 s
Fixture plate A-axis	ø 600 mm x 750 mm
Load capacity A-axis	max. 600 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	2 x 32 kW / 2 x 72 Nm

■ Feed drive

Rapid traverse X / Y / Z	65 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 15 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

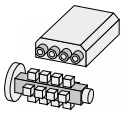
■ Tool magazine

Capacity	2 x 20 (2 x 32 / 2 x 40)
Max. tool dimension	ø 160 mm x 275 mm
Chip-to-chip time	approx. 2.5 s

■ Dimensions / Weight

Total weight	approx. 8,500 kg
Transport dimensions W x H x L	2.45 m x 2.85 m x 3.35 m

BA**34X**



■ Working range

X-axis	150 mm
Y-axis (tp)	500 mm (750 mm)
Z-axis	375 mm
Spindle distance	150 mm

■ Workpiece carrier

Swivel carrier 0/180°	1.0 s
Fixture plate A-axis	ø 600 mm x 750 mm
Load capacity A-axis	max. 600 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A40
Speed range	1 – 20,000 rpm
Power / Torque (40% duty cycle)	4 x 18 kW / 4 x 17 Nm

■ Feed drive

Rapid traverse X / Y / Z	55 / 75 / 75 m/min
Axis acceleration X / Y / Z	10 / 10 / 13 m/s^2
Max. feed thrust X / Y / Z	8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	4 x 15 (4 x 24 / 4 x 30)
Max. tool dimension	ø 125 mm x 275 mm
Chip-to-chip time	approx. 2.75 s

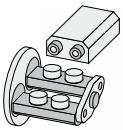
■ Dimensions / Weight

Total weight	approx. 8,500 kg
Transport dimensions W x H x L	2.45 m x 2.85 m x 3.35 m

BA 4

To make good things better is a permanent task. Even if you are afraid that the proven and successful will be repressed. The BA 400 has set a trend which finds its continuation in the form of the BA 422 and BA 442. Still with the monobloc design and the much lighter 3-axis unit compared to the BA 400 we have found increased potential for higher acceleration and speeds while more energy efficient and finally more productive. For increased production profitability for the machining of high volume quantities of, for example, hydraulic valves or common rail diesel pumps you will hardly find a more productive machine with two or four spindles, ball screws for high thrust and direct driven rotary axis.

BA422 BLOCK



■ Working range

X-axis	400 mm
Y-axis (tp)	500 mm (775 mm)
Z-axis	425 mm
Spindle distance	400 mm

■ Workpiece carrier

Swivel carrier 0/180°	approx. 3.5 s
Fixture plate A-, U-axis	ø 550 mm x 1,030 mm
Load capacity A-, U-axis	2 x 450 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	2 x 45 kW / 125 Nm

■ Feed drive

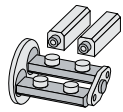
Rapid traverse X / Y / Z	55 / 70 / 70 m/min
Axis acceleration X / Y / Z	8 / 8 / 12 m/s^2
Max. feed thrust X / Y / Z	15,000 / 15,000 / 12,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	2 x 36 (2 x 60 / 2 x 92 / 2 x 116)
Max. tool dimension	ø 160 mm x 300 mm
Chip-to-chip time	approx. 2.75 s

■ Dimensions / Weight

Total weight	approx. 14,500 kg
Transport dimensions W x H x L	3.27 m x 3.05 m x 4.40 m



■ Working range

X-axis	400 mm
Y-axis (tp)	500 mm (775 mm)
Z-, Z_2-axis	425 mm
Spindle distance	400 mm

■ Workpiece carrier

Swivel carrier 0/180°	3.5 s
Fixture plate A-, U-axis	ø 550 mm x 1,030 mm
Load capacity A-, U-axis	2 x 450 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	2 x 45 kW / 125 Nm

■ Feed drive

Rapid traverse X / Y / Z	55 / 70 / 70 m/min
Axis acceleration X / Y / Z	8 / 8 / 15 m/s^2
Max. feed thrust X / Y / Z	15,000 / 15,000 / 2 x 8,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

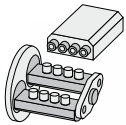
■ Tool magazine

Capacity	2 x 36 (2 x 60 / 2 x 92 / 2 x 116)
Max. tool dimension	ø 160 mm x 300 mm
Chip-to-chip time	approx. 2.75 s

■ Dimensions / Weight

Total weight	approx. 14,500 kg
Transport dimensions W x H x L	3.27 m x 3.05 m x 4.40 m

BA**442**



■ Working range

X-axis	200 mm
Y-axis (tp)	500 mm (775 mm)
Z-axis	425 mm
Spindle distance	200 mm

■ Workpiece carrier

Swivel carrier 0/180°	approx. 3.5 s
Fixture plate A-, U-axis	ø 550 mm x 1,030 mm
Load capacity A-, U-axis	2 x 450 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 10,000 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	4 x 32 kW / 4 x 72 Nm

■ Feed drive

Rapid traverse X / Y / Z	55 / 70 / 70 m/min
Axis acceleration X / Y / Z	7 / 7 / 12 m/s^2
Max. feed thrust X / Y / Z	15,000 / 15,000 / 12,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	4 x 18 (4 x 30 / 4 x 46 / 4 x 58)
Max. tool dimension	ø 150 mm x 300 mm
Chip-to-chip time	approx. 3.00 s

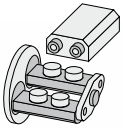
■ Dimensions / Weight

Total weight	approx. 14,500 kg
Transport dimensions W x H x L	3.27 m x 3.05 m x 4.40 m

BA 400

The BA400-2 machine has been our most successful model over the last 10 years. As twin- or four-spindle machine you will find it on all five continents in modern automotive plants. Robust, reliable and accurate are its attributes. Several times improved and made faster it has achieved a considerable market success for multispindle MCs with horizontal double swivel table and has spawned many imitators. However the original is always better than any good copy.

BA**400-2**



■ Working range

X-axis	400 mm
Y-axis (tp)	450 mm (700 mm)
Z-axis	400 mm
Spindle distance	400 mm

■ Workpiece carrier

Swivel carrier 0/180°	4.0 s
Fixture plate A-, U-axis	ø 500 mm x 1,000 mm
Load capacity A-, U-axis	2 x 450 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 12,500 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	2 x 25 kW / 2 x 85 Nm

■ Feed drive

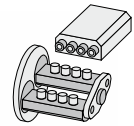
Rapid traverse X / Y / Z	50 / 50 / 50 m/min
Axis acceleration X / Y / Z	5.5 / 5.5 / 9 m/s^2
Max. feed thrust X / Y / Z	9,250 / 9,250 / 9,250 N
Position tolerance X / Y / Z	Tp = 0.010 mm (direct, absolute)

■ Tool magazine

Capacity	2 x 30 (2 x 60 / 2 x 92 / 2 x 112)
Max. tool dimension	ø 160 mm x 300 mm
Chip-to-chip time	approx. 3.5 s

■ Dimensions / Weight

Total weight	approx. 11,000 kg
Transport dimensions W x H x L	3.10 m x 3.00 m x 5.00 m



Working range

X-axis	200 mm
Y-axis (tp)	450 mm (700 mm)
Z-axis	400 mm
Spindle distance	200 mm

Workpiece carrier

Swivel carrier 0/180°	approx. 4.0 s
Fixture plate A-, U-axis	ø 500 mm x 1,000 mm
Load capacity A-, U-axis	2 x 450 kg

Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 17,500 rpm
Power / Torque (40% duty cycle)	4 x 16 kW / 4 x 50 Nm

Feed drive

Rapid traverse X / Y / Z	45 / 50 / 45 m/min
Axis acceleration X / Y / Z	3.5 / 6.5 / 6.0 m/s^2
Max. feed thrust X / Y / Z	9,250 / 9,250 / 11,000 N
Position tolerance X / Y / Z	Tp = 0.010 mm (direct, absolute)

Tool magazine

Capacity	4 x 30 (4 x 46 / 4 x 56)
Max. tool dimension	ø 125 mm x 300 mm
Chip-to-chip time	approx. 3.5 s

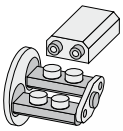
Dimensions / Weight

Total weight	approx. 13,000 kg
Transport dimensions W x H x L	3.40 m x 3.20 m x 5.00 m

BA 600

Over more than 10 years the ‘600’ is an established name in many countries and mass production factories for the effective machining of cast iron and steel parts for the automotive industry. The 780 Nm per spindle in the so called BA 600-2G is matchless. If you are looking for a comparison in the living world, one would describe this machine as a strong, reliable and good-natured workhorse that makes for many years of loyal service.

BA600-2



■ Working range

X-axis	600 mm
Y-axis (tp)	600 mm (975 mm)
Z-axis	500 mm
Spindle distance	600 mm

■ Workpiece carrier

Swivel carrier 0/180°	6.0 s
Fixture plate A-, U-axis	ø 675 mm x 1,420 mm
Load capacity A-, U-axis	2 x 700 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A100
Speed range	1 – 10,000 rpm
Power / Torque (40% duty cycle)	2 x 38 kW / 2 x 363 Nm

■ Feed drive

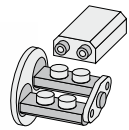
Rapid traverse X / Y / Z	45 / 45 / 45 m/min
Axis acceleration X / Y / Z	3.2 / 3.0 / 5.5 m/s^2
Max. feed thrust X / Y / Z	15,000 / 15,000 / 15,000 N
Position tolerance X / Y / Z	Tp = 0.010 mm (direct, absolute)

■ Tool magazine

Capacity	2 x 40 (2 x 50) (HSK - A100)
Max. tool dimension	ø 250 mm x 420 mm
Chip-to-chip time	approx. 4.5 s

■ Dimensions / Weight

Total weight	approx. 20,000 kg
Transport dimensions W x H x L	3.4 x 3.3 x 3.8 m / 4.2 x 3.0 x 2.4 m



Working range

X-axis	600 mm
Y-axis (tp)	550 mm (975 mm)
Z-axis	360 mm
Spindle distance	600 mm

Workpiece carrier

Swivel carrier 0/180°	6.0 s
Fixture plate A-, U-axis	ø 675 mm x 1,420 mm
Load capacity A-, U-axis	2 x 700 kg

Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A100
Speed range	1 – 5,000 rpm
Power / Torque (40% duty cycle)	2 x 31 kW / 2 x 780 Nm

Feed drive

Rapid traverse X / Y / Z	45 / 45 / 45 m/min
Axis acceleration X / Y / Z	3.2 / 3.0 / 5.5 m/s^2
Max. feed thrust X / Y / Z	15,000 / 15,000 / 15,000 N
Position tolerance X / Y / Z	Tp = 0.010 mm (direct, absolute)

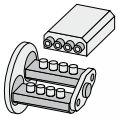
Tool magazine

Capacity	2 x 40 (HSK - A100)
Max. tool dimension	ø 340 mm x 300 mm
Chip-to-chip time	approx. 4.9 s

Dimensions / Weight

Total weight	approx. 20,000 kg
Transport dimensions W x H x L	3.4 x 3.3 x 3.8 m / 4.2 x 3.0 x 2.4 m

BA600-4



■ Working range

X-axis	300 mm
Y-axis (tp)	600 mm (975 mm)
Z-axis	500 mm
Spindle distance	300 mm

■ Workpiece carrier

Swivel carrier 0/180°	6.0 s
Fixture plate A-, U-axis	ø 675 mm x 1,420 mm
Load capacity A-, U-axis	2 x 700 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 12,500 rpm (1 – 17,500 rpm)
Power / Torque (40% duty cycle)	4 x 25 kW / 4 x 85 Nm

■ Feed drive

Rapid traverse X / Y / Z	45 / 45 / 45 m/min
Axis acceleration X / Y / Z	3.1 / 2.8 / 5.0 m/s^2
Max. feed thrust X / Y / Z	15,000 / 15,000 / 20,000 N
Position tolerance X / Y / Z	Tp = 0.010 mm (direct, absolute)

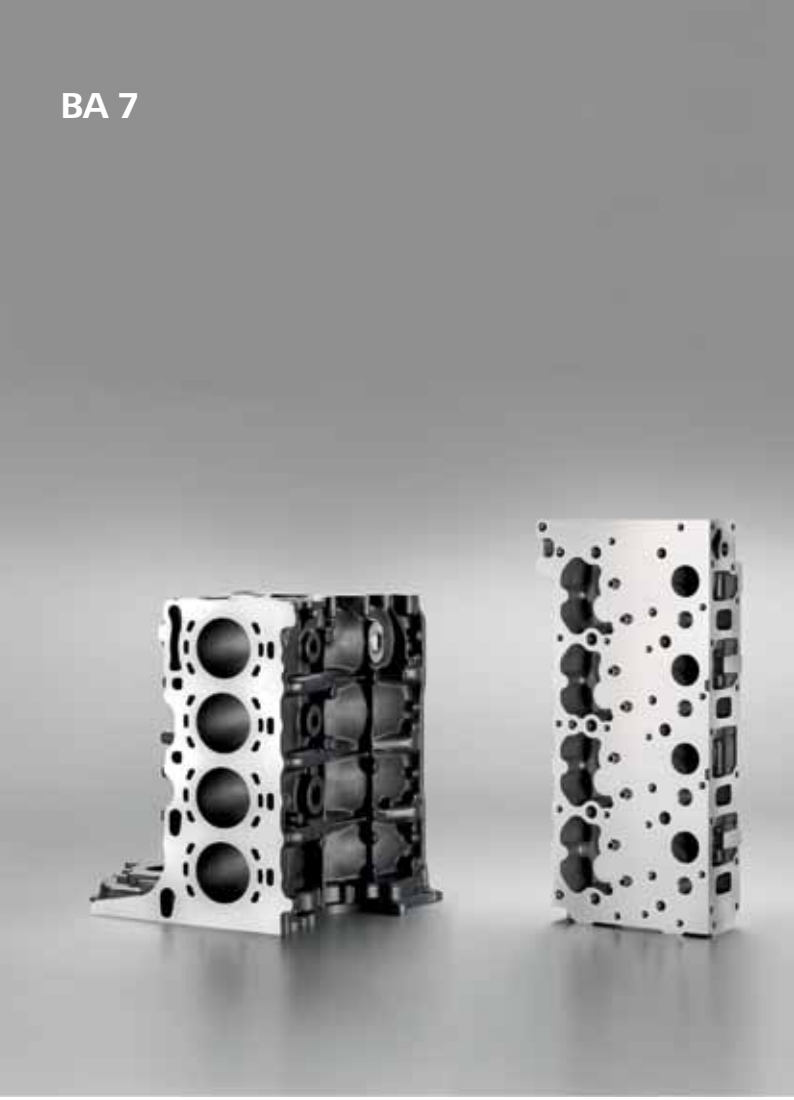
■ Tool magazine

Capacity	4 x 30 (HSK - A63)
Max. tool dimension	ø 160 mm x 350 mm
Chip-to-chip time	approx. 5.1 s

■ Dimensions / Weight

Total weight	approx. 20,000 kg
Transport dimensions W x H x L	4.0 x 3.3 x 3.8 m / 4.2 x 3.5 x 2.4 m

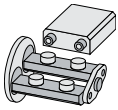
BA 7



Bigger, stronger, faster and more energy efficient. These were important targets for the development of the new 7 series. Bigger in terms of spindle distance (700mm) and work zone, stronger related to the spindles and rotary tables. Faster, by higher acceleration rates and traverse speed. More energy efficient as it's moving mass is 2000 kg lighter than before. This was only possible with the 3-axis unit design mounted in the monobloc. Another important prerequisite was that the work holding fixtures of the current BA 600 can be adopted. To achieve this we are providing two solutions. One is two spindles in a block-type ram at 600 mm spacing. The other, more elegant and a more flexible

version is the BA 722 with variable spindle distance. The two Z-axis rams have one additional X-axis each so one can program the spacing freely from 600 mm up to 700 mm via the CNC. This allows for example the use of a fixture with 600 mm between the work piece nests on one pallet, and any other distance above 600 up to 700 mm on the other. These additional X-axis are usable for machining as well a positioning.

BA722 BLOCK



■ Working range

X-axis	650 mm
Y-axis (tp)	650 mm (1,025 mm)
Z-axis	550 mm
Spindle distance	700 mm (600) mm

■ Workpiece carrier

Swivel carrier 0/180°	approx. 4.75 s
Fixture plate A-, U-axis	ø 775 mm x 1,600 mm
Load capacity A-, U-axis	2 x 800 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A100
Speed range	1 – 6,000 rpm
Power / Torque (25% duty cycle)	2 x 52 kW / 615 Nm

■ Feed drive

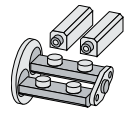
Rapid traverse X / Y / Z	60 / 60 / 60 m/min
Axis acceleration X / Y / Z	8 / 6 / 10 m/s^2
Max. feed thrust X / Y / Z	15,000 / 15,000 / 15,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	2 x 35 (2 x 60)
Max. tool dimension	ø 250 mm x 425 mm
Chip-to-chip time	approx. 3.5 s

■ Dimensions / Weight

Total weight	approx. 24,000 kg
Transport dimensions W x H x L	3.97 x 3.5 x 5.4 m / 3.5 x 3.5 x 5.4 m



■ Working range

X-axis	650 mm
Y-axis (tp)	650 mm (1,025 mm)
Z-,Z_2-axis	550 mm
Spindle distance	700 mm

■ Workpiece carrier

Swivel carrier 0/180°	approx. 4.75 s
Fixture plate A-, U-axis	ø 775 mm x 1,600 mm
Load capacity A-, U-axis	2 x 800 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A100
Speed range	1 – 10,000 rpm
Power / Torque (25% duty cycle)	2 x 42 kW / 400 Nm

■ Feed drive

Rapid traverse X / Y / Z	60 / 60 / 70 m/min
Axis acceleration X / Y / Z	8 / 6 / 12 m/s^2
Max. feed thrust X / Y / Z	15,000 / 15,000 / 2 x 10,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

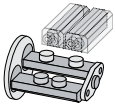
■ Tool magazine

Capacity	2 x 35 (2 x 60)
Max. tool dimension	ø 250 mm x 425 mm
Chip-to-chip time	approx. 3.50 s

■ Dimensions / Weight

Total weight	approx. 20,000 kg
Transport dimensions W x H x L	3.97 x 3.5 x 5.4 m / 3.5 x 3.5 x 5.4 m

BA722 VARIABLE



■ Working range

X-,X_2-axis	675 mm
Y-axis (tp)	650 mm (1,025 mm)
Z-,Z_2-axis	550 mm
Spindle distance	600 - 700 mm

■ Workpiece carrier

Swivel carrier 0/180°	4.75 s
Fixture plate A-, U-axis	ø 775 mm x 1,600 mm
Load capacity A-, U-axis	2 x 800 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A100
Speed range	1 – 10,000 rpm
Power / Torque (25% duty cycle)	2 x 42 kW / 400 Nm

■ Feed drive

Rapid traverse X / Y / Z	60 / 60 / 70 m/min
Axis acceleration X / Y / Z	8 / 6 / 12 m/s^2
Max. feed thrust X / Y / Z	2 x 10,000 / 15,000 / 2 x 10,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	2 x 35 (2 x 60)
Max. tool dimension	ø 250 mm x 425 mm
Chip-to-chip time	approx. 3.5 s

■ Dimensions / Weight

Total weight	approx. 24,000 kg
Transport dimensions W x H x L	3.97 x 3.5 x 5.4 m / 3.5 x 3.5 x 5.4 m

Why use a rotary dial machine when you can have the multi-spindle heads mounted in the monoblock of the BM 1250? In the BM1250 the fixtures/parts travel to the tools like in a pick-up machine. This way we match machining tasks that cannot be machined on an MC, technically viable and or economically. Whether big milling cutters or mulitspindle drill heads, 'the wall' provides space for special applications easily. The base machine is a standard machine, the configuration of the heads and fixtures are special. Allowing for better accessibility into the work zone and all other subassemblies and components. especially in comparison with rotary dial machines. Within the monobloc design the heads are directly facing the work pieces. You want to machine engine bed-plates? Come back and talk to us.

Working range

X-axis	700 mm (1,900 mm)
Y-axis (tp)	1,250 mm
Z-axis	500 mm

Workpiece carrier

Seat	550 mm x 350 mm
Hydraulic/pneumatic supply NG 6, max. 250 bar	16 times
Max. fixture weight	800 kg
Optional with A-axis	0-360°

Work spindle

Space requirement work spindles	1,000 mm x 1,900 mm
Total weight of the drilling heads max.	6,000 kg
Driving mode	Liquid-cooled three-phase drive
Max. Power	120 kW

Feed drive

Rapid speed X / Y / Z	60 / 60 / 50 m/min
Axis acceleration X / Y / Z	5 / 8 / 10 m/s^2
Max. feed thrust X / Y / Z	22,000 / 22,000 / 28,000 N
Positioning tolerance X / Y / Z	Tp = 0.010 mm (direct, absolute)

Dimensions / Weight

Machine dimensions W x H x L	5.75 m x 3.40 m x 3.70 m
Total weight	approx. 28,000 kg

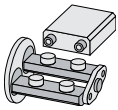
BA W04

If you are looking for the optimal MC for machining your aluminium parts, you are right here. The W04, with direct drive technology in all axis, being linear motors in X, Y and Z and torque motors in the rotary axis, you have found the reliable race horse to achieve minimum none-cutting time in machining of none ferrous metals.

Especially in the 4-spindle version, it prevailed in the market within a short time as the ideal, most economic machine for producing automotive master brake cylinders and ABS valve bodies. Based on the monoblock design as well, with integrated 3-axis unit and the double swivel table it is a typical SW machine. It achieved the next level

of robustness, accuracy at highest accelerations and at the same time allowing for maximum flexibility and productivity. In all types you can add one or two SW 5-axis units with either 2 or 4 satellites.

BA**W04-22 BLOCK**



■ Working range

X-axis	400 mm
Y-axis (tp)	500 mm (775 mm)
Z-axis	425 mm
Spindle distance	400 mm

■ Workpiece carrier

Swivel carrier 0/180°	3.5 s
Fixture plate A-, U-axis	ø 550 mm x 1,030 mm
Load capacity A-, U-axis	2 x 450 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 17,500 rpm
Power / Torque (40% duty cycle)	2 x 35 kW / 2 x 80 Nm

■ Feed drive

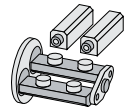
Rapid traverse X / Y / Z	100 / 100 / 100 m/min
Axis acceleration X / Y / Z	13 / 12 / 23 m/s^2
Max. feed thrust X / Y / Z	10,000 / 10,000 / 10,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolut)

■ Tool magazine

Capacity	2 x 36 (2 x 60 / 2 x 92 / 2 x 116)
Max. tool dimension	ø 160 mm x 300 mm
Chip-to-chip time	approx. 2.25 s

■ Dimensions / Weight

Total weight	approx. 18,000 kg
Transport dimensions W x H x L	3.23 m x 3.05 m x 5.1 m



■ Working range

X-axis	400 mm
Y-axis (tp)	500 mm (775 mm)
Z-,Z_2-axis	425 mm
Spindle distance	400 mm

■ Workpiece carrier

Swivel carrier 0/180°	3.5 s
Fixture plate A-, U-axis	ø 550 mm x 1,030 mm
Load capacity A-, U-axis	2 x 450 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 17,500 rpm
Power / Torque (40% duty cycle)	2 x 35 kW / 2 x 80 Nm

■ Feed drive

Rapid traverse X / Y / Z	100 / 100 / 100 m/min
Axis acceleration X / Y / Z	13 / 12 / 23 m/s^2
Max. feed thrust X / Y / Z	10,000 / 10,000 / 2 x 5,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolut)

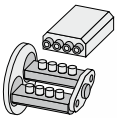
■ Tool magazine

Capacity	2 x 36 (2 x 60 / 2 x 92 / 2 x 116)
Max. tool dimension	ø 160 mm x 300 mm
Chip-to-chip time	approx. 2.25 s

■ Dimensions / Weight

Total weight	approx. 18,000 kg
Transport dimensions W x H x L	3.23 m x 3.05 m x 5.1 m

BA**W04-42**



■ Working range

X-axis	200 mm
Y-axis (tp)	500 mm (775 mm)
Z-axis	425 mm
Spindle distance	200 mm

■ Workpiece carrier

Swivel carrier 0/180°	3.5 s
Fixture plate A-, U-axis	ø 550 mm x 1,030 mm
Load capacity A-, U-axis	2 x 450 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 17,500 rpm
Power / Torque (40% duty cycle)	4 x 32 kW / 4 x 72 Nm

■ Feed drive

Rapid traverse X / Y / Z	70 / 100 / 100 m/min
Axis acceleration X / Y / Z	10 / 10 / 22 m/s^2
Max. feed thrust X / Y / Z	10,000 / 15,000 / 15,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

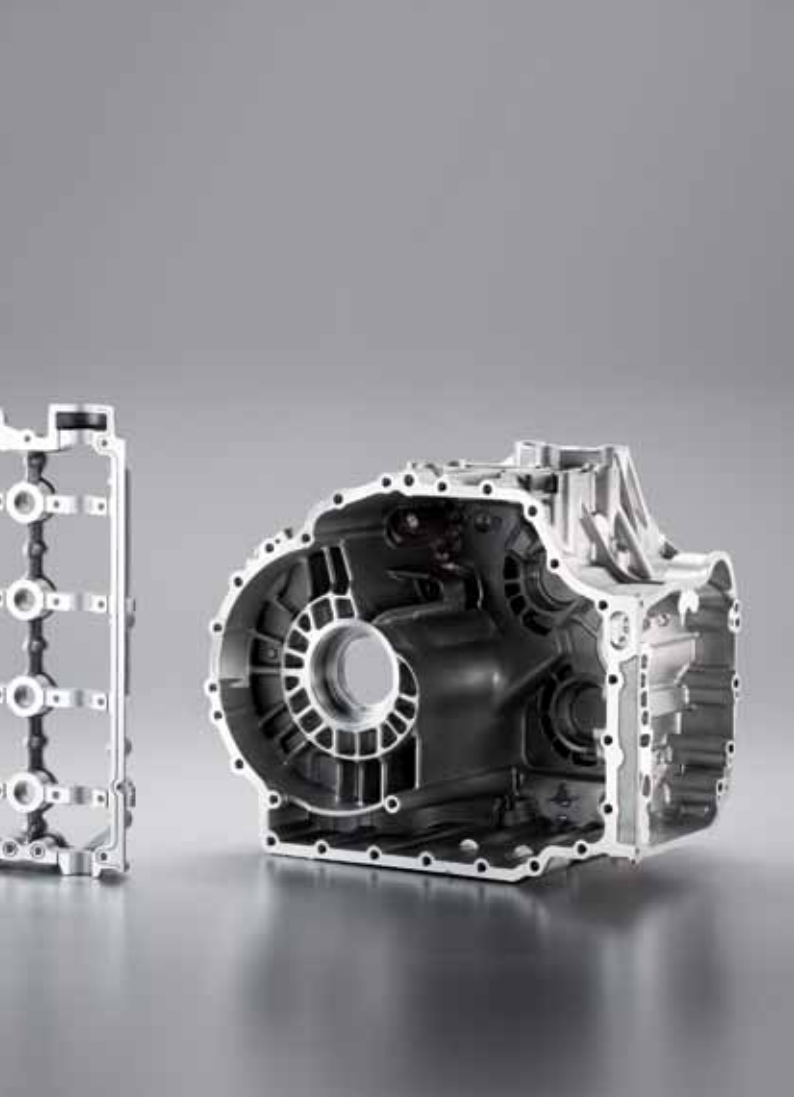
Capacity	4 x 18 (4 x 30 / 4 x 46 / 4 x 58)
Max. tool dimension	ø 150 mm x 300 mm
Chip-to-chip time	approx. 2.4 s

■ Dimensions / Weight

Total weight	approx. 18,000 kg
Transport dimensions W x H x L	3.23 m x 3.05 m x 5.1 m

BA W06

If you need to machine large aluminium housings, like for example a transmission case or ladder frame in the 600 mm range and the none-cutting time takes) a large portion of you cycle time, then the W06 is the first choice. The W06 is, like the W04, equipped with linear motors in X,Y, and Z axis and torque motors in all rotary axis. A reliable 'race horse' with maximum acceleration to machine none ferrous metals, including aerospace parts. With the monobloc, box-in-box 3-axis unit and double swivel table it's a typical SW.



BA**W06-12**

■ Working range

X-axis	1,150 mm
Y-axis (tp)	600 mm (875 mm)
Z-axis	500 mm
Spindle distance	-

■ Workpiece carrier

Swivel carrier 0/180°	3.5 s
Fixture plate A-, U-axis	ø 675 mm x 1,430 mm
Load capacity A-, U-axis	2 x 600 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 17,500 rpm
Power / Torque (40% duty cycle)	35 kW / 80 Nm

■ Feed drive

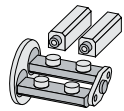
Rapid traverse X / Y / Z	120 / 120 / 120 m/min
Axis acceleration X / Y / Z	16 / 12 / 30 m/s^2
Max. feed thrust X / Y / Z	6,000 / 10,000 / 6,000 N
Position tolerance X / Y / Z	Tp = 0.006 mm (direct, absolute)

■ Tool magazine

Capacity	42 (84 / 144)
Max. tool dimension	ø 160 mm x 350 mm
Chip-to-chip time	approx. 2.75 s

■ Dimensions / Weight

Total weight	approx. 20,000 kg
Transport dimensions W x H x L	3.68 m x 3.25 m x 5.40 m



■ Working range

X-axis	600 mm
Y-axis (tp)	600 mm (875 mm)
Z-,Z_2-axis	500 mm
Spindle distance	600 mm

■ Workpiece carrier

Swivel carrier 0/180°	3.5 s
Fixture plate A-, U-axis	ø 675 mm x 1,430 mm
Load capacity A-, U-axis	2 x 600 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 17,500 rpm
Power / Torque (40% duty cycle)	2 x 35 kW / 2 x 80 Nm

■ Feed drive

Rapid traverse X / Y / Z	100 / 100 / 100 m/min
Axis acceleration X / Y / Z	12 / 10 / 20 m/s^2
Max. feed thrust X / Y / Z	10,000 / 10,000 / 2 x 5,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

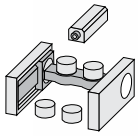
■ Tool magazine

Capacity	2 x 42 (2 x 72)
Max. tool dimension	ø 160 mm x 350 mm
Chip-to-chip time	approx. 2.75 s

■ Dimensions / Weight

Total weight	approx. 20,000 kg
Transport dimensions W x H x L	3.68 m x 3.25 m x 5.40 m

BA**W06-1W**



■ Working range

X-axis	1,150 mm
Y-axis (tp)	600 mm (875 mm)
Z-axis	500 mm
Spindle distance	-

■ Workpiece carrier

W-axis	225 mm (1,000 mm)
Fixture plate A-axis	ø 800 mm x 1,430 mm
Load capacity	750 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 17,500 rpm
Power / Torque (40% duty cycle)	35 kW / 80 Nm

■ Feed drive

Rapid traverse X / Y / Z	120 / 120 / 120 m/min
Axis acceleration X / Y / Z	16 / 10 / 30 m/s^2
Max. feed thrust X / Y / Z	6,000 / 10,000 / 6,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	42 (84 / 144)
Max. tool dimension	ø 160 mm x 550 mm
Chip-to-chip time	approx. 2.75 s

■ Dimensions / Weight

Total weight	approx. 20,000 kg
Transport dimensions W x H x L	3.68 m x 3.25 m x 5.80 m

■ Working range

X-axis	600 mm
Y-axis (tp)	600 mm (875 mm)
Z-, Z_2-axis	500 mm
Spindle distance	600 mm

■ Workpiece carrier

W-axis	225 mm (1,000 mm)
Fixture plate A-axis	ø 800 mm x 1,430 mm
Load capacity	750 kg

■ Work spindle

Spindle taper	Hollow shank DIN 69893 – HSK – A63
Speed range	1 – 17,500 rpm
Power / Torque (40% duty cycle)	2 x 35 kW / 2 x 80 Nm

■ Feed drive

Rapid traverse X / Y / Z	100 / 100 / 100 m/min
Axis acceleration X / Y / Z	12 / 10 / 20 m/s^2
Max. feed thrust X / Y / Z	10,000 / 10,000 / 2 x 5,000 N
Position tolerance X / Y / Z	Tp = 0.008 mm (direct, absolute)

■ Tool magazine

Capacity	2 x 42 (2 x 72)
Max. tool dimension	ø 160 mm x 550 mm
Chip-to-chip time	approx. 2.75 s

■ Dimensions / Weight

Total weight	approx. 20,000 kg
Transport dimensions W x H x L	3.68 m x 3.25 m x 5.80 m

GOOD ADVICE



Single spindle, twin- or four spindle? Before the decision for any particular machine type is made, many questions have to be answered.
How many parts per shift must be produced? How can the parts be located and clamped best? What is the best and safest process?
SW will provide a comprehensive concept – with cycle times and cost-per-part calculations – in order to confirm the correctness of our proposed manufacturing system.
How do we set the stage for you to be sure? With a test machining trial in our technology-centre for example. We are permanently testing new ways to machine components, try out tools and verify the accuracies we promise to achieve. And before you decide, there must be no worries about the decision for an SW machine.

Design work holding fixtures, build them, test them, improve them in production and reuse this experience. A closed loop process which we have run through countless times. Only this way you gain true machining competence. By build-in, permanent monitoring mechanisms we detect misplaced parts, be they manually loaded or by an automation system. Locating devices can ensure that the workpieces are located properly

The design of our fixtures will convince you that in combination with an SW machine you will reliably manufacture high quality parts over many years.

Our in-house competence to layout the best cutting tools for your task is another integral part of a successful solution. Challenge us and we will prove to you that the clamping concept, cycle times and quality levels we promised will truly be achieved. Together with cutting tool manufacturers we will make statements for the suitability and durability of the planned tools be it for automotive, industrial or aerospace applications. Do you aim for improvement? Can we machine your part on a four-spindle MC? Is it too dangerous or simply not possible to try-out a new process or cutting tool in your daily production? Come and see us, we will find out what is technically possible and what makes economic sense. We offer to help with our whole competence.

You have your own know-how for fixtures, cutting tools and process? Well done! We offer to help you combining your know-how with the right SW machine. What you machine on a single-spindle MC today, you might want to manufacture on a twin- or fourspindle SW tomorrow. Let us prove it to you. So you are sure and run your business more profitable than your competitors.

THE TECHNOLOGY PEOPLE

The Schwäbische Werkzeugmaschinen GmbH – SW – emerged in the mid 1990's from Heckler & Koch Maschinen und Anlagenbau GmbH. In 2004 SW becomes part of the EMAG Group in Salach (near Stuttgart). Strengthened in 2008 by the entry of financial investor SDB, who since 2012 retain a 100% shareholding in SW.

A staff of over 300 employees develops and designs machine-tools and special equipment. The industrial, commercial and technical apprenticeship for young professionals was strengthened in the past years. Trainee programs will enable and promote creative talents for specialized functions and management capabilities. A well balanced age structure ensures know-how transfer from experts to beginners. Provident, detailed planning in all technical and commercial areas safeguard the all current demands and consistent new or updated developments aligned with current market demands. We invest several millions of Euros each year into new machines, the improvement of existing SW machines and people, as well as for better external and internal services.
If you want to learn more about our programs and plans, please contact us or our colleagues in your branch offices. You can reach us at www.sw-machines.de or at +49 7402-74-0.

You can find SW agencies and subsidiaries worldwide.

Contact details and contact persons can be found at
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