

# New definition of freedom: **the continuation**

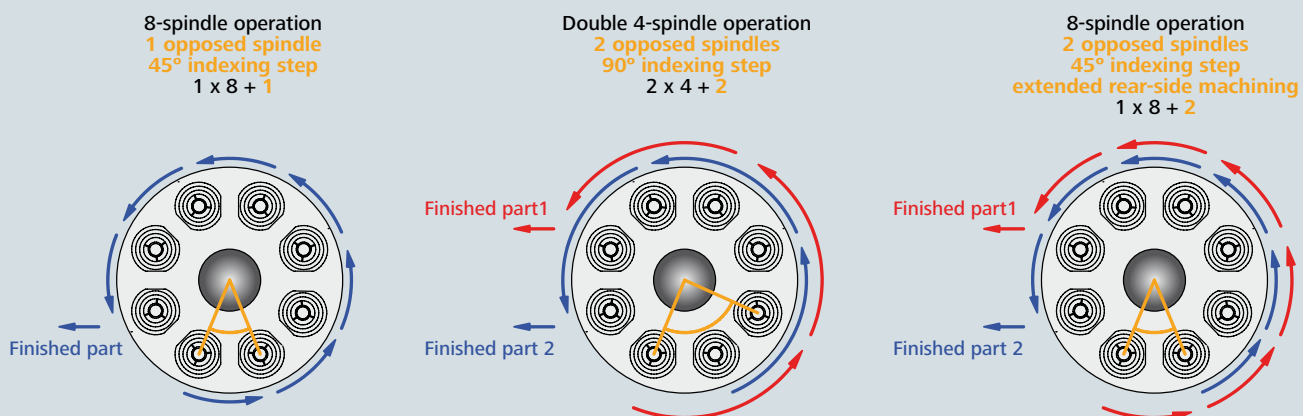
EVOLUTION IS UNSTOPPABLE ...

# Eight spindles and your variants

Schütte is launching the second stage of its "Generation SCX" multi-spindle automatics, which have already been successfully introduced to the market. The eight-spindle automatic ACX 36 with a max. machining diameter of 40 mm is a practical addition to the series. The ACX 36 consistently unites the features of the tried-and-tested classic multi-spindle automatics with regard to: **Quickness, rigidity, reliability and productivity.**

The new ACX can always be adapted exactly to the requirements of the respective product range of the customer. For complicated parts that require extensive machining, it allows significantly better separation of the work steps in comparison with a 6-spindle machine. The double 4-spindle operation is also an interesting feature. This means that two identical parts that are less complex and thus only require 4 main spindles can be produced at the same time. The machining cycle with two opposed spindles is provided for workpieces with extensive rear-side machining. Two machine cycles are available for machining the part-off side of the workpiece. With its different operating modes, the ACX provides the right solution for each workpiece.

Based on the SCX concept whereby flexible machine conversion is possible at any time, the different operating modes of the ACX can also be selected at any time. A mechanical conversion is not required. The developers consistently omitted all guides and drives from the machining area in the ACX machine concept. Nor are there any coolant hoses, lubrication lines and electrical cables inside the material removal area.



# The **new** eight-spindle automatic

## **SICS – stands for: simple configuration, operation and programming**

The configuration, operation and programming of the machine are carried out with the help of the **SICS** user interface developed by Schütte. It is optimally tuned to the range of functions of the multi-spindle automatic ACX.

Machine setters, operating and maintenance personnel can concentrate on their real work because **SICS** provides them with the respective predefined input and operating menus for their tasks. The co-ordination and distribution of the data to the individual control systems and channels run in the background and are not visible to the user.

## **SICS and its optional modules\* for realisation of Industry 4.0:**

- **SICS.EnergyManager**
- **SICS.Workstation**
- **SICS.Connect**
- **SICS.ToolManagement**
- **SICS.Simulation**
- **SICS.Cockpit** (web application)

\* See our special publication on:  
SICS modules for your Industry 4.0 implementation



OPTIONS THAT INCREASE YOUR VALUE CREATION

# ACX 36



## Stable machine structure

A characteristic of the multi-spindle automatics from Schütte is the split arrangement of the machining units for longitudinal and cross machining on two machine stands. This design provides the machine with an extremely high level of stability, which is reflected not least in a high material removal capacity and, for example, makes sophisticated drilling operations possible.

## Modular system for machining units and attachments

The machining units form the basis of the modular system which allows the machine to be flexibly extended, converted or retrofitted with further functions, drives and axes. Each machining unit for cross and longitudinal machining can be equipped with a turret function. This makes it possible, for example, to use sister or follow-on tools. A further equipment option is a Y-axis that can also be used in each position.

## Complete machining: i.e. workpiece front and rear-side machining

The ACX machines are designed for complete machining, i.e. the front and rear side of the workpiece are completed in a single cycle. Of decisive importance are the simultaneously active eight main spindles and up to two opposed spindles. All spindles are equipped with liquid-cooled direct drives, which permit freely selectable speeds independently of one another. With a torque of 85 Nm, they have particularly high dynamics and traction.





Fig. 1, Image sequence at top, from left to right:  
Free configuration of the tool heads in all spindle positions.



Fig. 2, Shift hobbing via Y-axis



Fig. 3, The programmable polygon turning attachment makes the creation of a wide range of surfaces on a workpiece easy.

Fig. 4, The ACX is also flexible during workpiece removal. Several pick-up systems from the longitudinal and cross axis are available for this purpose. The ACX concept also includes damage-free and accurately positioned discharge of workpieces.

Fig. 5, Workpiece parting off and takeover by the opposed spindle

Fig. 6, High productivity through parallelism – two tools engaged at the same time

Fig. 7, Longitudinal machining module with stationary tool and driven high-frequency spindle

Fig. 8, Two part-off slides provide an option for parallel extensive rear-side machining

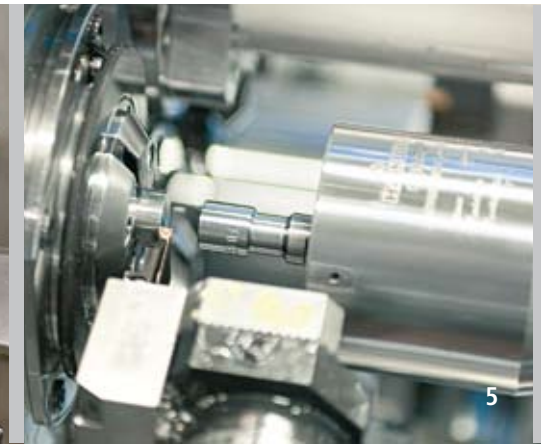
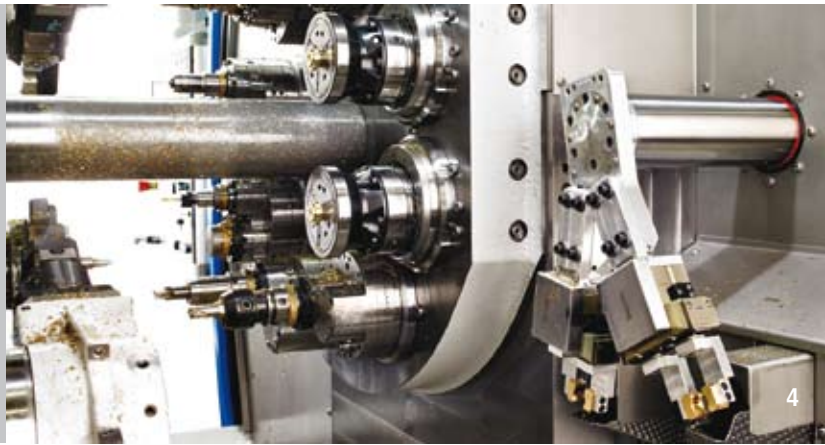


The number of material removal steps is determined by the operating mode of the ACX. Machining operations with one or two spindles on the second workpiece side are included in the machining portfolio.



- Cleared-up, free accessible machining area
- No drives, cross slides, lubrication and cooling lines or cables within the machining area
- Free falling chips
- Really simple retooling and tool retrofitting
- Free speed selection
- Enlargement of the machining range through extended rear-side machining including C and Y-axis

Operation and programming of the ACX – made easy



### Modular cross machining units – the ideal equipment for your production

- CNC compound slide units in all positions as standard
- Rigid hydrostatic quill guidance with top damping properties
- Optional Y-axis and turret function for follow-up and sister tools
- Optional additional slides in positions 7 and 8, simultaneous pre-part-off of a follow-up workpiece during rear-side workpiece machining

### Powerful on both sides

- Longitudinal machining units with hydrostatic quill guidance in the separate machine stand
- Straight flow of force of the material-removal forces prevents bending moments on the tool carriers
- Optional Y-axis and turret function for follow-up and sister tools
- Machining of workpiece rear side with up to 2 fully-fledged spindles
- Same spindle output of main and opposed spindles for efficient material removal

### The best concept

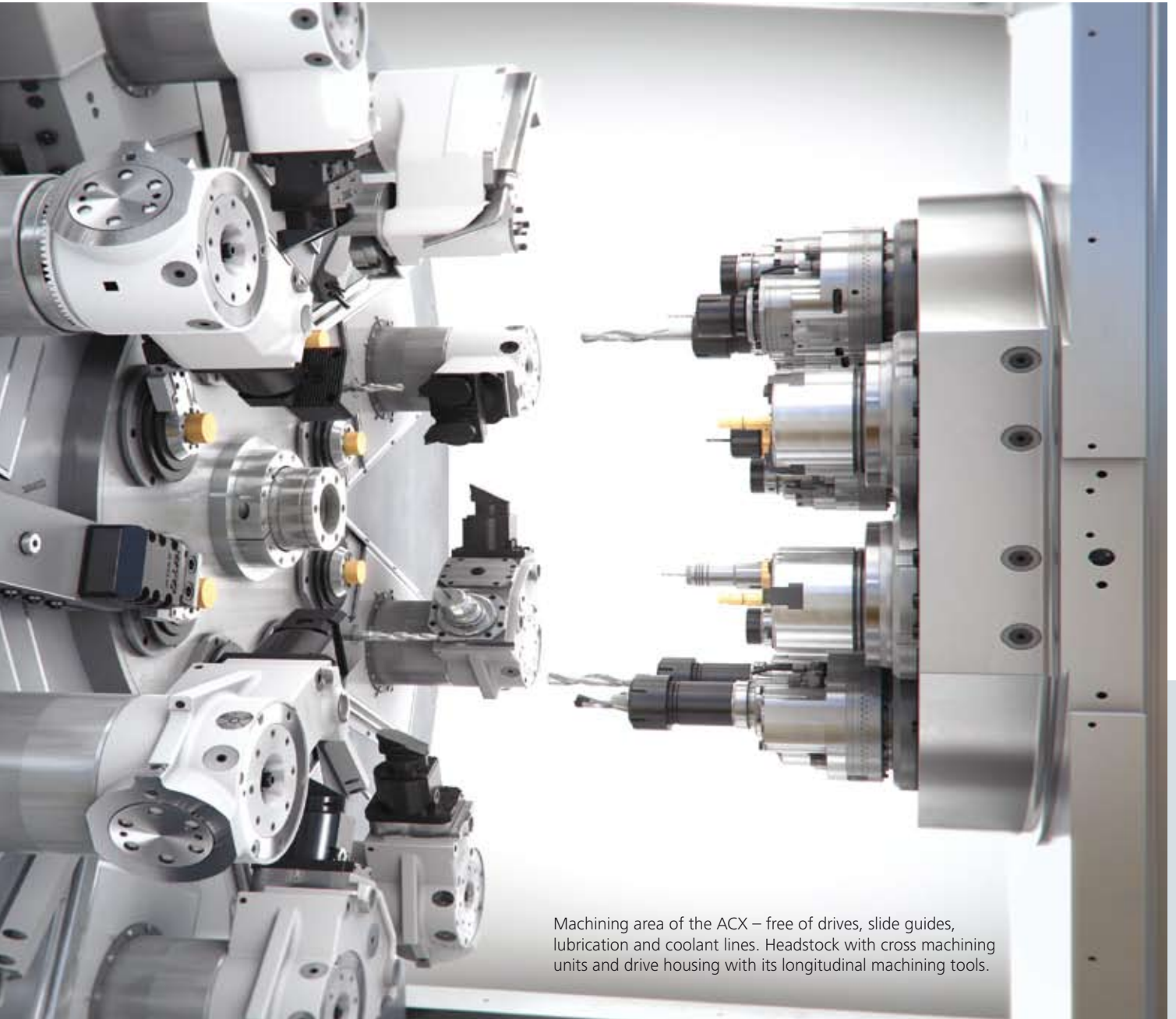
- Flexible configuration of stationary and driven tools of all machining units
- Modular system provides retooling and retrofitting options
- No drives, cables, etc. within the machining area
- Optimised free-falling of chips even with materials that are difficult to cut
- Excellent accessibility for setup activities and tool change

### The right solution for each part

- Modular, flexible configurable handling system for operation with 1 or 2 opposed spindles
- Damage-free pick-up of finish-machined workpieces
- Oriented depositing or transfer to a downstream handling system
- Robot integration for palletising inside the machine is optional, pallet change parallel to the main time
- Optional cleaning and measuring stations with measured data return for dimensional corrections







Machining area of the ACX – free of drives, slide guides, lubrication and coolant lines. Headstock with cross machining units and drive housing with its longitudinal machining tools.



#### Workpiece range

Clamping diameter, max. ....	mm	40
Material feed, max. ....	mm	125

#### Main spindles

Rated torque .....	Nm	31
Torque, max. ....	Nm	76
Speed, max. ....	rpm	5500

#### Machining units, cross (positions I to VIII)

X-axis path .....	mm	110
X-axis speed, max. ....	m/min	30
Z-axis path .....	mm	150
Z-axis speed, max. ....	m/min	30
optional:		
Y-axis path .....	mm	± 50
Tool turret, no. of positions up to .....		6

#### Machining units, cross (optional additional slides in part-off positions VII and VIII)

X-axis path .....	mm	80
X-axis speed, max. ....	m/min	30

#### Machining units, longitudinal (positions I to VII)

Z-axis path .....	mm	280
Z-axis speed .....	m/min	30
optional:		
X-axis path (turning tools) .....	mm	25
Y-axis path (driven tools) .....	mm	± 50
Tool turret, positions .....		2

#### Opposed spindles, (positions VII and VIII)

Number, max. ....		2
Rated torque .....	Nm	31
Torque, max. ....	Nm	84
Speed, max. ....	rpm	7300

#### Tool drives

Rated torque .....	Nm	18
Torque, max. ....	Nm	51
Speed, max. ....	rpm	8500

#### Tool interfaces

Stationary tools, optional .....	HSK/Capto	
Driven tools, optional .....	HSK/Capto	
Internal coolant supply, max. ....	bar	100

#### Control system

CNC .....	SIEMENS 840D SL
Teleservice, optional: Tool monitoring, OPC UA Server, workstation version	

#### Versions

AC8-36	without opposed spindle
AC9-36	with 1 opposed spindle
AC10-36	with 2 opposed spindles

## ACX SERIES – *the new multi-spindle automatic*