

Interfaces of the machine

- Extraction system
- Coolant purification plant and chip conveyor
- Bar feed attachment
- Fire extinguishing system
- Cooling system
- Workpiece discharge via conveyor belt
- Workpiece clamping device

INDEX Multi-spindle turning machines

Control system INDEX C200-sl

Note on applicability

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Contents

Extraction system interface.....	5
Local extraction plants.....	6
General.....	6
Mechanical connection.....	7
Fluidic connection.....	9
Electrical connection.....	10
Switching the extraction plant ON and OFF.....	11
Fire protection in case of local extraction plants.....	11
Optional signals.....	11
Central extraction plants.....	12
General.....	12
Mechanical connection.....	12
Fluidic connection.....	12
Electrical connection.....	12
Shut-off valve.....	13
Coolant purification plant and chip conveyor interface.....	15
Local coolant purification plant and chip conveyor.....	16
General.....	16
Mechanical connection.....	17
Fluidic connection.....	17
Electrical connection.....	17
Electrical interface with products of the Knoll company.....	18
Safety aimed functions.....	18
Control system of the chip conveyor.....	19
Electrical interface for customised coolant purification plant.....	20
Central coolant purification plant and chip conveyor.....	21
General.....	21
Mechanical connection.....	21
Fluidic connection.....	22
Electrical connection.....	22
Electrical interface in case of a central coolant purification plant.....	22
Bar feed attachment interface.....	23
Bar loading magazines.....	24
General.....	24
Mechanical connection.....	25
Fluidic connection.....	25
Reliable interface signals.....	26
Bar guiding systems.....	27
General.....	27
Mechanical connection.....	28
Fluidic connection.....	28
Electrical connection.....	28
Reliable interface signals.....	29

Fire extinguishing system interface	31
General	32
Fire protection.....	34
Readiness for operation and selection	34
Fire alarm.....	34
 Cooling system interface	 35
General	36
Mechanical connection (local cooling system only).....	36
Fluidic connection.....	37
Electrical connection (local cooling system only)	37
Control interface	38
 Interface for workpiece discharge via conveyor belt.....	 39
General	40
Mechanical connection.....	40
Fluid coupling.....	40
Electrical connection	40
Control interface	41
 Workpiece clamping device interface.....	 43
General	44
Appropriateness of clamping devices.....	45
Installation of the clamping device	46

Extraction system interface

Local or central extraction systems for oilmist extraction

Local extraction plants

General

INDEX multi-spindle turning machines may be equipped with a local extraction plant. Extraction plants serve the extraction of oil mist from the machining area of the machine.

By default, an extraction plant by the Büchel company has been provided.

The required ventilation system performance of the extraction plant depends on the amount of oil mist produced during the machining process. The extraction plant must at least exhibit a ventilation system performance of 1,500m³/h.



For further information please refer to the manufacturer documents of the respective extraction plant.

Mechanical connection

For the points where you fix the extraction plant at the machine as well as for the dimensions and the position of the extraction tube, please refer to the floor plan.

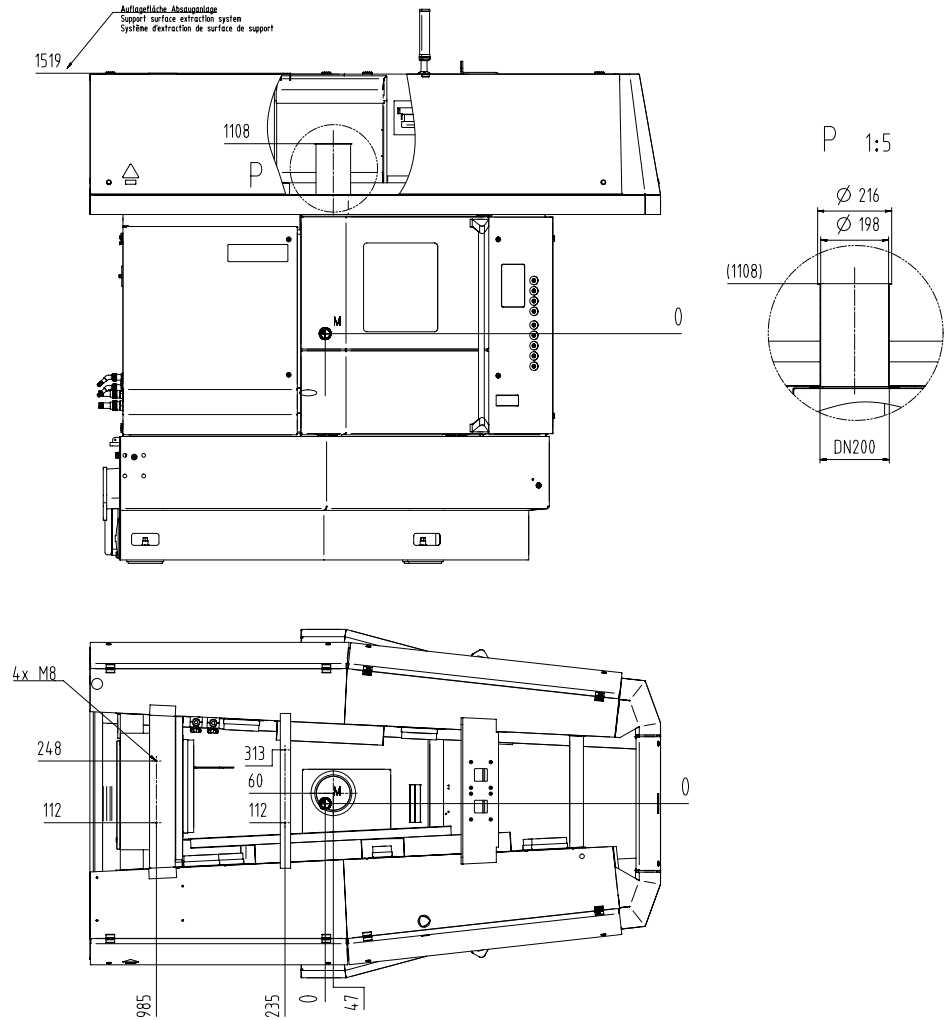


Illustration 01: Example image of the attachment position of an extraction plant.

Extraction plants which have been provided by default, are being connected directly at the extraction tube of the machine.



Illustration 02: Standard attachment of an extraction plant by the Büchel company

In case you wish to attach a customised product, connection happens at a shut-off valve situated above the extraction tube of the machine.

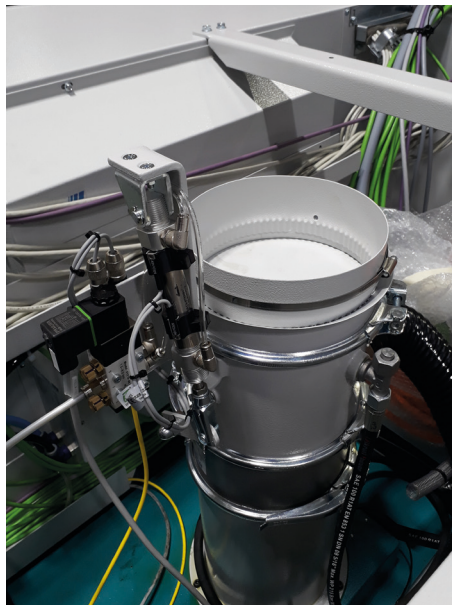


Illustration 03: Shut-off valve which has been provided for the connection of a customised extraction plant.

Fluidic connection

In case of fire, part of the extinguishing agent from the fire-extinguishing system will be lead into the extraction tube of the local extraction plant. For this purpose, an extinguishing agent hose is connected with the extraction tube of the extraction plant.

- Products of the Büchel company: connected directly within the extraction tube - see illustration 04
- Other products: connected with the shut-off valve - see illustration 03



Illustration 04: Connection of the extinguishing agent hose

Electrical connection

Power supply and signal transmission happen via an electrical line between the turning machine and the extraction plant.

In case of plants equipped with an additional "Filter clogged" signal, there exists an additional electrical line. (Concerning this, please refer to section "Optional signals".)

Switching the extraction plant ON and OFF

The power supply of the extraction plant is switched ON and OFF by the machine control system.

There is no further interface between the machine control system and the extraction plant.

The machine control system starts the extraction plant in case the following conditions have been fulfilled:

- no EMERGENCY STOP
- no fire alarm
- no loading cycle
- low pressure, high pressure or high pressure valves ON (in case of machines equipped with a cooling lubricant supply system)
- overall cycle active and workpieces under machining (in case of dry processing machines)

In case of EMERGENCY STOP or fire alarm, the extraction plant will immediately be switched OFF by the machine control system.

Fire protection in case of local extraction plants

In case a fire is detected by the machine, the extraction activity of the extraction plant will be stopped.

In addition, part of the extinguishing agent will be lead into the extraction tube / suction hose of the extraction plant.

Optional signals

Signal: "Filter clogged"

For the implementation of the monitoring activities of the extraction plant, the MS machines have been provided with the electrical "Process influencing inputs" interface.

The outputs of the extraction plant will be connected with the "process influencing inputs" of said interface.

Thus, you may for instance achieve the effect that the machine stops in case the extraction plant signals an error. (Please refer to section "Process influencing inputs" of the "Operating the machine" document.)

Central extraction plants

General

INDEX multi-spindle turning machines can be connected with a central extraction plant. Extraction plants serve the extraction of oil mist from the machining area of the machine.

The machine operating company is responsible for sufficient extraction.

Mechanical connection

For the purpose of connecting the machine with a central extraction plant, a shut-off valve has been provided at the machine. For dimensions and the position of the connecting point, please refer to the floor plan.

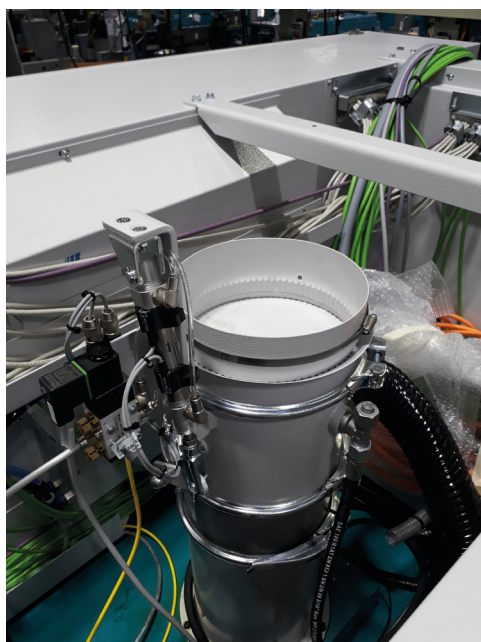


Illustration 05: Shut-off valve provided for the connection of the machine to a central extraction plant.

Fluidic connection

In case of fire, part of the extinguishing agent from the fire-extinguishing system will be lead into the extraction tube of the central extraction plant. For this purpose, an extinguishing agent hose is connected with the shut-off valve (see illustration 05).

Electrical connection

There is no electrical connection between the central extraction plant and the machine.

Shut-off valve

A shut-off valve is used in case of the application of a centralised extraction plant or of a customised local extraction plant.

The addressing of the shut-off valve is identical with the addressing of the extraction plant (extraction ON = shut-off valve OPEN).

In addition to this, the shut-off valve is being monitored by means of two separate magnetic switches (open/closed).

In case of a condition change, a valid position must be signalled within 5 seconds. Thereafter, the achieved condition will be monitored.

Any error will entail a stop at the end of the cycle.

Coolant purification plant and chip conveyor interface

Local coolant purification plant and chip conveyor

General

INDEX multi-spindle turning machines may be equipped with a local **coolant purification plant** and with a chip conveyor.

A coolant purification plant may consist of a pump station plus cooling lubricant container and heat exchanger, a purification plant and a switch cabinet.

In case of the MS22-6, MS22-8, MS24-6, MS32-6, MS40-6, MS40-8 and MS52-6 machines, the chip conveyor is being controlled by the control system of the coolant purification plant and therefore forms part of the coolant purification plant of the above mentioned machine types.

In case of the MS16-6 and MS16-6Plus machines, the chip conveyor is being controlled by the control system of the turning machine and therefore forms part of the above mentioned turning machine types.

The pump station serves the making available, cooling and the supply of the cooling lubricant.

The purification plant serves the cleaning of the cooling lubricant.

The switch cabinet serves the control of the units described above and as electrical and control interface between the purification plant and the turning machine.

The chip conveyor serves the conveying of the chips resulting from the machining process of the machine into a collecting container and the return transportation of cooling lubricant into the purification plant.

Purification plants and chip conveyors manufactured by the Knoll-Maschinenbau GmbH company have been provided as standard attachments.



For further information please refer to the manufacturer documents concerning the respective coolant purification plant and chip conveyor.

Mechanical connection

There is a mechanical connection between the machine and the chip conveyor.

The exact attachment points of the chip conveyor at the machine as well as the dimensions and the position of the chip channel can be read from the floor plan.

When attaching the chip conveyor heed must be paid to a leakage-free connection to the machine.

For the mounting positions of the components pertaining to the coolant purification plant please refer to the floor plan.

Fluidic connection

There is a fluidic connection between the pump station and the machine.

At the machine drag there are connections for cooling lubricant low pressure, cooling lubricant high pressure, additional cooling lubricant high pressure, cooling lubricant for the synchronised spindle and cooling lubricant for a water-jet pistol (rinsing low pressure). Depending on the configuration of the pump station, all or only part of said connections will be used. Connections which are not used must be sealed.

At the machine casing there are additional connections for the heat exchanger (forward and reverse flow)



Illustration 01 and 02: mechanical and fluidic connection points at a multi-spindle turning machine

Electrical connection

Power supply and signal transmission happen via a common electrical line between the turning machine and the switch cabinet of the coolant purification plant.

Electrical interface with products of the Knoll company

The coolant purification plant is equipped with a control system of its own. Via said control system, one or more pumps are being addressed.

The coolant purification plant is connected to the machine by means of a combined hardware / Profibus interface.

The machine control system issues the order to switch-ON the pumps via the Profibus at the coolant purification plant.

The above happens in the following cases:

- in case the cooling lubricant selector switch is set to centre position to "Cooling lubricant automatic" and the machining area doors are being locked.
- in case the cooling lubricant selector switch is set to the right-hand position of "Cooling lubricant ON" and the machining area doors have been pushed closed (without locking, however, without high pressure)

By means of the the part programme, the coolant may be switched ON and OFF again via M-commands during the cycle. Similarly, individual valves may directedly be switched-ON and OFF. Standard switching-ON of the plant happens after switching the hydraulic system ON and after the locking of the machining area door.



For details concerning the programming, please refer to the programming instructions or to the programming information.



For further details concerning the control interface, please see the description of the "UNICOOL-interface".

Safety aimed functions

As far as safety is concerned, the pumps are being protected in the following way:

1. One circuit of the machine equipped with EMERGENCY STOP goes to the coolant purification plant.
2. One circuit of the machine equipped with machining area door contacts goes to the coolant purification plant. The machining area door contacts represent the safety related motion release of the machine with machining area doors being closed. There will be no release in case of confirmation with machining area doors being open.

On the part of the coolant purification plant, the signals are being evaluated via the plant's own safety relay and power is switched there for the pumps as well.



Please heed that the low pressure pumps can also be switched ON with open machining area doors.

Control system of the chip conveyor

The user may influence the chip conveyor by means of two switches. Both switches have the following positions: "Forward run", "OFF" and "Backward run (jog mode)".

One of the two switches is at the chip conveyor. The other switch is at the INDEX machine control panel.

The following operation scenarios will be supported:

Machining area doors locked:

Switch at the chip conveyor	Switch at the machine control panel		
	Forward run	OFF	Backward run
Forward run	Release	OFF	Backward run
OFF	OFF	OFF	OFF
Backward run	Backward run	Backward run	Backward run

Machining area doors unlocked:

Switch at the chip conveyor	Switch at the machine control panel		
	Forward run	OFF	Backward run
Forward run	OFF	OFF	Backward run
OFF	OFF	OFF	OFF
Backward run	Backward run	Backward run	Backward run

The contents of the above table has the following meaning:

- Backward run: The chip conveyor runs backward in jog mode.
- OFF: The chip conveyor does not run.
- Release: Release of forward motion of the chip conveyor in "Automatic" mode.

The properties in "Automatic" mode may be defined by the user. You may define run and dwell times. Moreover, the user may define whether the chip conveyor is supposed to run only during production or also in case the machine is idling.

In order to alert personnel within the area of the chip conveyor to the start of the conveying motion, in "Automatic" mode the run of the chip conveyor will be cycled in the following way:

0.5s run - 1s dwell time - 0.5s run - 1s dwell time - permanent run

The "OFF" position of the switch at the chip conveyor has priority over the switch at the operating panel. Reason: Whenever an operator is working at the chip conveyor, a second person at the machine control panel is supposed to have no possibility to start the chip conveyor.

Electrical interface for customised coolant purification plant

In case the operating company uses different coolant purification plants and chip conveyors than those provided by INDEX, communication between the machine control system and the control system of the customised coolant purification plant and chip conveyor happens via the UNICOOL EA or the UNICOOL DP coupling interface.



For more detailed information please refer to the description of the "UNICOOL interface".

Central coolant purification plant and chip conveyor

General

INDEX multi-spindle turning machines may be connected to a central coolant purification plant.

With INDEX multi-spindle turning machines, the disposal of chips may be carried out via a workshop-integrated chip conveying system.

Mechanical connection

The turning machine must be positioned towards a workshop-integrated chip conveying system in such a way that chips and cooling lubricant can be handed over free of leakage. Depending on the design of the workshop-integrated chip conveying system, maybe, the operating company must take appropriate measures to complete a leakage-free connection with the machine. At this, the operating company shall heed the local environmental and health and safety at work regulations.

The connection points of the chip discharging unit can be read from the floor plan.

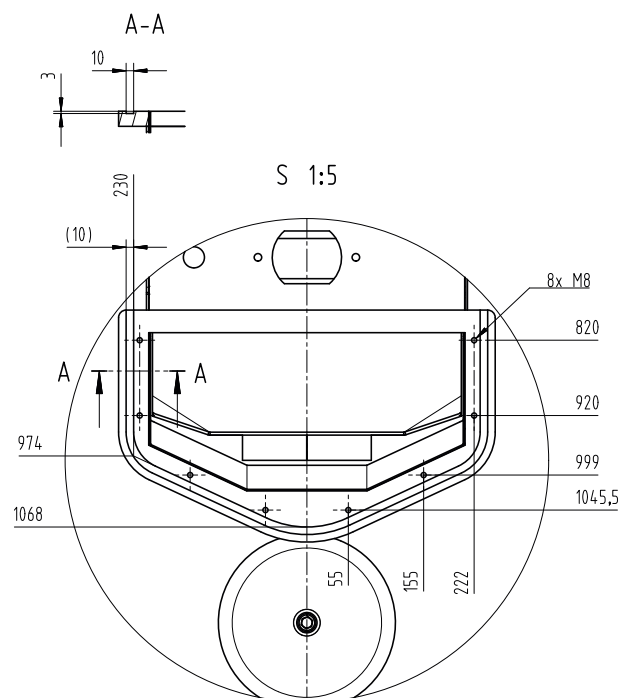


Illustration 03: Example: at this face, the chip conveyor is fastened to a MS40-6 machine

Fluidic connection

There is a fluidic connection between the central coolant purification plant and the machine.

At the machine drag there are connections for cooling lubricant low pressure, cooling lubricant high pressure, additional cooling lubricant high pressure, cooling lubricant for the synchronised spindle and cooling lubricant for a water-jet pistol (rinsing low pressure). Connections which are not used must be sealed. See illustrations 01 and 02.

Electrical connection

There is no electrical connection between the turning machine and a central coolant purification plant.

Electrical interface in case of a central coolant purification plant

The electrical connection with a central coolant purification plant happens via the UNICOOL EA interface.



For detailed information concerning the above mentioned interface, please refer to the description of the "UNICOOL interface"

In case a chip conveyor is existing, the addressing of the chip conveyor must happen via the external plant.

Bar feed attachment interface

**Bar loading magazines and bar guiding attachments
Supply, feeding and guiding of raw bar material**

Bar loading magazines

General

INDEX multi-spindle turning machines may be equipped with a bar loading magazine.

Bar loading magazines serve the supply, feeding and the guiding of raw bar material.

Bar loading magazines may exclusively be attached to and be operated at machines which are intended for said purpose.

The following table gives you a survey of which bar loading magazines are provided as standard attachment for which machine type.

Machine/magazine	IEMCA SIR	IEMCA Next	MBL
MS16-6		X	
MS16-6Plus	X	X	
MS22-6	X		
MS22-8	X		X
MS24-6	X		X
MS32-6.2	X		
MS32-6.3	X		X
MS40-6	X		X
MS40-8	X		X
MS52-6	X		



To guarantee the safety and the proper operation of the bar loading magazine and of the machine, the attachment and alignment of a bar loading magazine must exclusively be carried out by INDEX personnel or by personnel of the respective manufacturer of the loading magazine.

Mechanical connection

The positioning of the bar loading magazine at the machine can be read from the floor plan.

Fluidic connection

The bar loading magazines possess their own hydraulic aggregate.

The pneumatic supply of the bar loading magazines happens via their own connection to the factory pneumatic in-workshop-system.

In case of the MBL-bar loading magazine, there exist an additional hydraulic connection and additional purging air and cooling water connections between machine and loading magazine. The connections are displayed in the respective fluid plans.



Illustration 01: Example: fluidic connections at an MBL-bar loading magazine.

Electrical connection

Power supply and signal transmission happen via an electrical line between the turning machine and the bar loading magazine switch cabinet.

On the one hand, the electrical interface is composed of safety aimed signals and on the other hand of a data interface via Profibus DP.



For further information, please refer to the manufacturer documents of the respective system.

Reliable interface signals

The following table provides an overview of the safety aimed signals of the interface and their application in connection with loading magazines.

The signals are being carried out on two channels between the machine and the loading magazine.

Reliable signal	Applied?	Description
EMERGENCY STOP	Yes	Both, machine and loading magazine have one safety aimed control system of their own. The signals of the EMERGENCY STOP circuits are being mutually exchanged via the interface. EMERGENCY STOP on one side must lead to an EMERGENCY STOP on the other side.
Magazine hood locked/closed from loading magazine to machine	No	Machine and loading magazine have their separate hood circuits which are being processed by their respective own safety aimed control system.
Spindle/drum release from loading magazine to machine	Yes	The loading magazine sees to it that no endangerments are being caused in the area of the loading magazine by movements of the machine (spindle rotation or drum indexing).
Motion release from machine to loading magazine	Yes	In case the machining area doors are open, the machine will suppresses any bar feeds so that no endangerments are being caused in the machine area by movements of the loading magazine.

Machine and loading magazine exchange their functional signals via a Profibus DP connection.



For operation and programming information, please refer to the respective manuals.

Bar guiding systems

General

INDEX multi-spindle turning machines may be equipped with bar guiding systems. Bar guiding systems serve the guidance of the raw bar material.

Bar guiding systems may exclusively be attached to and be operated with machines which have been provided for this purpose.

The following table provides a survey on which bar loading magazines have been provided as standard magazine for which machine type.

Machine/magazine	INDEX bar guiding system
MS16-6	X
MS16-6Plus	X
MS22-6	X
MS22-8	X
MS24-6	
MS32-6.2	X
MS32-6.3	
MS40-6	X
MS40-8	
MS52-6	X



In order to guarantee the safety and operational reliability of the bar guiding system and the machine, the attachment and the alignment of a bar guiding system may exclusively be carried out by INDEX personnel.

Mechanical connection

The attachment position of the bar guiding system at the machine can be read from the floor plan.

Fluidic connection

INDEX bar guiding systems merely dispose of pneumatic functions. For the respective pneumatic connection between machine and bar guiding system please refer to the respective fluid plan.

Electrical connection

Since the INDEX bar guiding systems have no control system of their own, the functions of the bar guiding system are being entirely controlled by means of the machine control system.

Power supply and signal transmission happen directly via electrical lines between the turning machine and the respective function modules of the bar guiding system.

Reliable interface signals

The following table shows a survey of the safety aimed interface signals and of their application in connection with the bar guiding systems.

The signals are being carried out on two channels between the machine and the bar guiding system.

Reliable signal	Applied?	Description
EMERGENCY STOP	NO	Bar guiding systems have no control systems of their own and there exist no emergency stop sensors at the bar guiding system.
Magazine hood locked / closed from bar guiding system to machine	Yes	All magazine hoods of the bar guiding system are being processed via the safety aimed control system of the machine.
Spindle/ drum release from bar guiding system to machine	Yes	With load securing device being open or in case the bar guiding system is being shifted, there will be a spindle or drum release withdrawal from the software.
Motion release from machine to bar guiding system	NO	The bar guiding systems have no control systems or actuators of their own.

Fire extinguishing system interface

**Fire extinguishing system for the extinguishing of
cooling lubricant fires**

General

INDEX turning machines may be equipped with a fire extinguishing system. The fire extinguishing system is an optional unit of the machine equipment and is required for machines where there is the risk of fire and deflagration.

The fire extinguishing system exclusively serves the detection and the extinguishing of cooling lubricant fires in the machining area of the machine and will merely be activated in case the machining area door is shut.

The fire extinguishing system does not serve the fighting of fires which arise from inflammable materials or from their powders (e.g. magnesium). In case inflammable materials are being used, different appropriate measures for fire and deflagration protection must be taken.

Basically, the operating company is responsible for the prevention of fires and deflagrations. The required measures must be determined by the operating company in co-operation with the respective institutions (e.g. employment protection organisations, fire protection officer, fire brigades). The use of some cooling lubricants in combination with distinct production parameters and the material which is supposed to be machined, entail a higher risk of fire and explosion. Therefore, personnel working close to or operating the machine are exposed to an elevated risk. This is why the operating company must take appropriate measures for the prevention of explosions or fire.

Strong heat development, open fire or other ignition sources (e.g. cigarettes) are therefore prohibited within the range of the machine.

In case a fire extinguishing system is existing, the use of cutting oil on the basis of mineral oil as a cooling lubricant can be permitted.

Basically, at the cutting edge the amount of the cooling lubricant must be as high as possible in order to prevent the formation of inflammable oil mists.



For further information concerning the fire protection topic please refer to the user document "Safety instructions".

The fire extinguishing system which is intended as the standard feature has been mounted within the machine cowling and is equipped with a sensor system for optical and heat based fire detection.



Illustration 01: fire extinguishing system mounted as standard equipment



For further information please refer to the manufacturer document concerning the respective system.

Fire protection

The fire extinguishing system is equipped with an extra switch at the machining room doors in order to detect whether the machining area doors are open or closed.

On the one hand, the fire extinguishing system has been integrated into the EMERGENCY STOP circuit of the machine. On the other hand, the fire extinguishing system issues a "Ready" signal to the control system of the machine.

The evaluation of the "Ready" signal of the fire extinguishing system is influenced by the following parameters:

- Mazu 8 (fire extinguishing system)
 - Mazu 8 = 0 → fire extinguishing system cancelled
 - Mazu 8 = 1 → fire extinguishing system active

Readiness for operation and selection

- In case the fire extinguishing system is ready, however, has been cancelled in the control system by means of Mazu 8, an information text will be displayed at the control system. Said message may be confirmed, however, it will be cyclically repeated.
- In case the fire extinguishing system is not ready and has been cancelled in the control system by means of Mazu 8, it will not be processed by the control system.
- Input signal "Fire extinguishing system ready" will turn into "= 1" as soon as the system is effectively ready and if the machining doors have been pushed closed.
- The static condition of "Fire extinguishing system ready" will be monitored. Any error will entail a stop at the end of the cycle.
- In case the system is not ready, the control system will issue the "Fire extinguishing system not ready" alarm and will not permit any cycle start.

Fire alarm

- In case of fire alarm (alarm level 1), the extinguishing procedure (alarm level 2) will only be introduced after the machining area doors have been closed. The machining area doors will be locked (= kept shut) and the fire extinguishing system will trigger an EMERGENCY OFF. Subsequent unlocking of the machining area doors can only happen in case no fire alarm is active any longer or after expiration of a delay time of 2 minutes.

Fire alarm in case of open machining area doors

- If it comes to a fire alarm while the machining area doors are open, the fire extinguishing procedure can only take place after the machining area doors have been closed.

Cooling system interface

Local or central cooling system

General

INDEX multi-spindle turning machines must be connected with a cooling system. Both, local or central cooling systems may be used. The cooling system serves the provision of cooling water for the heat exchangers of the machine.



For the required cooling power as well as for further information, please refer to the operating instructions DIM056EN.



For any details concerning coolant, water quality and water treatment, please see Document "Information on operating materials".

In case a water recirculation cooling device is used, please heed the instructions of the manufacturer.



For further information, please refer to the manufacturer documents concerning the respective system.

Mechanical connection (local cooling system only)

The installation spot can be seen from the installation plan of the machine.

Fluidic connection

The machine is equipped with connections for inlet flow and recirculation. For the exact designations of the connections, please refer to the respective fluid plan.

MS16-6 MS16-6Plus MS22-6 MS22-8 MS32-6.2 MS40-6 MS40-8 MS52-6	Connection thread G1 ½
MS24-6 MS32-6.3	Connection thread M45x2



Illustration 01: cooling water connections at a multi-spindle machine

Electrical connection (local cooling system only)

Power supply and signal transmission happens via electrical lines between the turning machine and the cooling system.

Control interface

Local cooling water systems issue two simple signals to the machine:

"Ready" and "Filter clogged"

With signal "Ready" missing or with "Filter clogged" signal being active, the machine will stop at the end of the cycle.

In case of central cooling systems, there usually is no communication between cooling system and machine. The cooling systems are often located far away from the machine within the building technology systems. In such case, the machine is addressed only via tubes or hoses.

On the machine side, the proper functioning of the local or central cooling systems is secured once more:

- by the machine recording data relative flow rate and temperature of the cooling water and generating the respective alarms.
- by machine switch-OFF at the end of the cycle in case of an oil temperature rise in the machine in order to prevent damages resulting from said temperature rise.

Interface for workpiece discharge via conveyor belt

MS22-6, MS22-6L, MS22-8, MS24-6, MS32-6, MS40-6, MS40-8, MS52-6

General

Different possibilities have been provided for the discharge of workpieces from INDEX multi-spindle turning machines.

The workpieces may be transported to an aperture of the machine casing via an internal conveyor belt. Outside the turning machine, the workpieces may either be collected (in a container) or be transported further via an external conveyor belt.



Despite all the technical measures which have been taken by INDEX for the protection and safety of the operating personnel, flame ejection at any one aperture of the machine casing cannot entirely be excluded. For this reason, a small risk is remaining for the personnel who are working close to or operating the machine.



For further information concerning fire protection, please refer to user document DAA007 "Safety precautions".



In case external attachments for the collection or the further transport of workpieces have been provided from external manufacturers, please refer to the respective manufacturer documentation concerning the respective attachment for further information.

Mechanical connection

External attachment for the collection or the further transportation of workpieces may either be flange-mounted at the drag of the machine via a screw coupling or be erected separately next to the machine.

Fluid coupling

A G1/2 -connector has been provided at the machine in order to lead cooling lubricant escaping from the workpiece discharging attachment back into the machine.

Electrical connection

Power supply happens via a plug connection between turning machine and external attachment.

Control interface

To switch ON and OFF the conveying function of an external attachment, the machine control system switches ON and OFF the 400 V at the electrical interface.



Illustration 01: Example MS40-8 workpiece hand-over spot of the machine



Illustration 02 and 03: Example MS40-6 equipped with external conveyor belt

Workpiece clamping device interface

General

INDEX multi-spindle turning machines can be provided with different clamping devices.

With first delivery of the machine, the equipment options are as follows:

- the machine is delivered with the provided standard clamping device
- the machine is delivered with a special clamping device that has previously been checked and approved by the INDEX engineering department.

As the workpiece clamping device must be especially adjusted to any and every workpiece, the machine operating company can exchange the clamping attachments according to her requirements.



The workpiece clamping device of a turning machine can be considered as a safety function

Therefore, it is extremely important that the clamping attachment is appropriate with regard to the technical characteristics of the machine, with regard to the chucking geometry and with regard to the demands of the workpiece machining process.



In case a customer wishes to install a self-designed and self-procured clamping device to an INDEX multi-spindle turning machine immediately after its first delivery, INDEX will deliver said machine equipped with a standard clamping device for the start-up procedure. Thereafter, the machine must be remodelled by the machine operating company.

Appropriateness of clamping devices

For the determination of the appropriateness of clamping devices, INDEX makes available the following information:

Technical data

- maximum spindle speed
- maximum clamping forces

Technical drawing concerning the mechanical connecting point of the spindle with the clamping device.

- contact surfaces of spindle/clamping device
- fastening screw thread
- limiting dimensions for clamping devices
- actuator stroke
- proof class of the machine casing
- chucking cylinder piston area where the determination of the tractive/pressure force of the chucking tube with given pressure takes place



The limits of the workpiece clamping device are being determined by the lowest value of the performance data (of each machine and clamping device).

In order to achieve a safe workpiece clamping, the unbalance of the clamping device and of the workpiece must be limited to a minimum. If necessary, appropriate measures must be taken to reduce the workpiece clamping device unbalance.

Arising centrifugal forces of the clamping jaws must be taken into account.

In order to determine the appropriateness of a clamping device, said device must additionally comply with the requirements of standard DIN EN ISO 23125 and with the requirements of the standard which is valid for the respective clamping device.



When checking the appropriateness of a clamping device, you must additionally consult the user documentation of the respective clamping device manufacturer.

Installation of the clamping device

The installation of clamping devices into the machine may only be carried out by experienced specialised staff.

Unless otherwise specified in the technical drawing concerning the connecting point, you may fasten the fixing screws of the clamping device according to VDI2230.



The lathe spindle is a high-precision and sensitive assembly group of the turning machine.

INDEX takes no responsibilities for damage caused due to the inappropriate installation of clamping devices.



When mounting the clamping devices, you must additionally observe the information given in the user documentation of the respective clamping device manufacturer.



After installation is done, you must teach the chuck path monitoring. For information concerning this, please refer to user documentation DIM040EN "Operating the Machine".

INDEX

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