

Aerotech System E

Designed to evacuate dust and fine pieces of debris, small enough to escape through the Fan Outlets ①. You can use both profiled and straight Inserts (cutters) with this range: **C05201 & C05202**. See FIG. A.

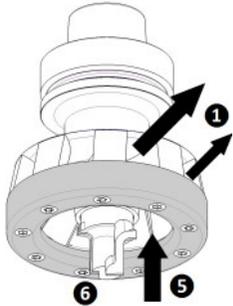


FIG. A

Aerotech System E Plus

Designed to evacuate dust and fine pieces of debris, while deflecting larger pieces of debris and off-cuts ②. You can ONLY use straight Inserts (cutters) with this range: **C05203 & C05204**. See FIG. B.

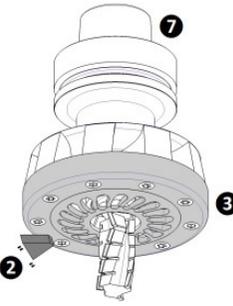


FIG. B

The 'Plus' range

These Aerotechs are all equipped with a specifically designed grill called 'Faceplate' ⑬, available in Ø95 mm & Ø105 mm. models.

Characteristics common to all versions

Machine interface: HSK63F Insert (cutter) interface: HSK20E Rotation: Right-hand (Ø95 mm models are recommended for Nesting). (Ø105 mm models are recommended for Routing).

Spec chart, Troubleshooting and Service Center Info

Overleaf is a specifications chart containing important information including: technical drawings, weights relevant article codes, troubleshooting guide and information concerning accessories required by your local service center for re-grinding HSK20E Inserts (cutters).

Components

All the parts of your Wirutex Aerotech System E / Aerotech System E Plus have article codes. Only use parts from Wirutex or your authorized Wirutex dealer. The use of non-authentic parts could damage the Aerotech and/or your machine, and will void any and all warranty.

⚠ Failure to properly follow these instructions may result in serious injury or death. Before using your Aerotech, visually inspect it and make sure it is perfectly clean. When rotating at operational RPM, the Aerotech System E / Aerotech System E Plus are devices that can draw air at a velocity of >80 m/sec. into the Fan Intake.

⚠ Do not place your hand or an object near the Fan Outlet ①, Fan Intake ②, or Insert (cutter) ③ while the Aerotech is in operation. Adequate ear protection is advised if necessary. Sound levels will depend on the work environment, position of your CNC machine and sound insulation offered by the CNC machine. The use of Aerotech System E / Aerotech System E Plus should be done by technically competent and trained personnel only, and in compliance with your national Health and Safety regulations.

⚠ Before you begin
Always inspect your Aerotech System E / Aerotech System E Plus and Insert (cutter) for dust, debris and rust. Pay special attention to the HSK interfaces (cones):
I) HSK63F machine interface ④
II) HSK20E Insert interface ⑤
Should dust, debris or rust be found it is critical that it is completely removed prior to any further use of the Aerotech or Insert. Clean surfaces on all HSK interfaces have a determining factor towards:
I) Edge-finish
II) Vibration
III) Cutter life
IV) Overall performance
Failure to follow this procedure may also result in serious injury or even death!

⚠ HSK20E
All versions of Aerotech System E / Aerotech System E Plus have a HSK20E clamping interface (cone). See FIG. C. Do not attempt to use Inserts (cutters) that are not HSK20E. Only use Inserts from Wirutex or your authorized Wirutex dealer. The use of non-authentic Inserts could damage the Aerotech and/or your machine, and will void any and all warranty.

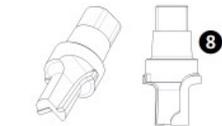


FIG. C

HSK20E Inserts have precision ground surfaces for metal-to-metal contact with the Aerotech on both the radial and axial plains. This guarantees permanent static accuracy and a fixed zero point, allowing the CNC machine operator to maintain a constant setting of the machine's Z axis after changing between similar Inserts. See FIG. D.

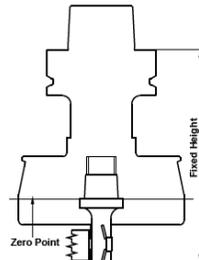


FIG. D

⚠ Installing your HSK20E Insert (cutter)

To ensure that your Insert is correctly and securely installed, and to avoid accidentally dropping either your Aerotech or Insert, we strongly recommend that this operation is done using the Mounting Plate which is specifically designed to hold your Aerotech System E / Aerotech System E Plus while installing and removing HSK20E Inserts. Before fitting an Insert to the Aerotech body, make sure that the Mounting Plate is securely fixed to the end of a workbench or table top. To ensure you have positioned the Mounting Plate correctly, the side with the rubber protection should be at the end of the workbench or table top. See FIG. E.

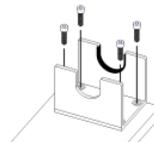


FIG. E

⚠ The use of gloves during this operation is also recommended to avoid cutting your fingers on the knives of your Insert and to protect the Aerotech and Insert from eventual corrosion due to moisture on your hands.

Introduce your HSK20E Insert (cutter) into the clamping socket of your Aerotech System E / Aerotech System E Plus. See FIG. F. For user safety and to guarantee correct installation, 'long flats' are present on both elements:

I) Insert ⑨
II) Aerotech ⑩
Unless these flats are coupled it will not be possible to engage the M12 threads to secure your Insert. You can easily locate and mate these flats by rotating the Insert until it 'falls' into position, making contact with the Locking Screw, once positioned the Insert cannot rotate. You are now ready to tighten the Insert.

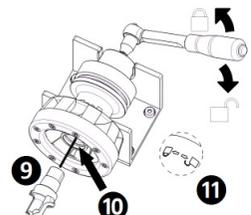


FIG. F

The Insert is pulled into the Aerotech by turning the Locking Screw, the head of the Locking Screw is found within the HSK63F cone. This operation can be done using either a simple S8 T-wrench (component of kit) or Torque Wrench (recommended). Turn the Locking Screw (clock-wise) until the Insert is fully retracted into the Aerotech. See FIG. G. Padlock symbols ⑪ are laser etched on the Aerotech to indicate the rotation for tightening and releasing Inserts. The correct torque to which the Inserts should be tightened is 25Nm.

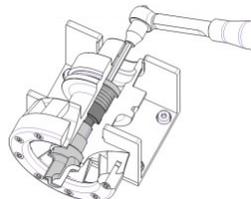


FIG. G

Once tightened, remove the T-wrench or Torque Wrench. Your Aerotech is now ready to be measured on a Pre-setter and then used.

Floating Height (distance between the face of the panel/material and the front/opening of the Aerotech)

We recommend not operating the Aerotech System E / Aerotech System E Plus at a Floating

Height of less than 2mm as this may cause the Aerotech to come into contact with the panel/material due to tension, deformations or part movement during cutting operations. A Floating Height of less than 2 mm will also reduce the airflow created by the Aerotech and limit its ability to perform dust extraction. See FIG. H.

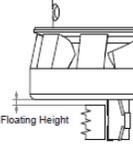


FIG. H

⚠ Do not remove

Removal of the Fixed End Flange ⑫ for either repair, maintenance or replacement, should only be carried out by Wirutex, or an authorized Wirutex dealer*. This is to avoid subsequent imbalance. Improper repair, maintenance or replacement of parts will void any and all warranty. See FIG. I.

*Info for authorized persons only: The Fixed End Flange is fitted to the Aerotech using Torx TX20 M4x20 UNI 7688 Stainless S. screws tightened to a torque setting of 2.8 Nm.



FIG. I

⚠ Removal of the Faceplate ⑬ for either repair, maintenance or replacement, should only be carried out by Wirutex, or an authorized Wirutex dealer*. This is to avoid subsequent imbalance. Improper repair, maintenance or replacement of parts will void any and all warranty. See FIG. J.

*Info for authorized persons only: The Faceplate is fixed to the Aerotech using Torx TX20 M4x16 UNI 7688 Stainless S. screws tightened to a torque setting of 2.8 Nm.



FIG. J

⚠ Maintenance, cleaning and storage

It is critical that your Aerotech System E / Aerotech System E Plus are kept clean and clear of debris at all times. Lodged debris in the Fan Intake and Outlets, or on the Faceplate can substantially reduce the effectiveness of your Aerotech. Visually inspect each of your Aerotechs at the end of each shift. Remove any pieces of debris that may have become lodged in the Aerotech. Try doing this without using a pneumatic hose (airline), taking care not to touch the cutting edges of the tool. See FIG. K.

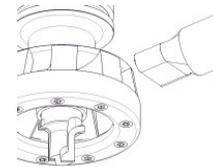


FIG. K

Only use the pneumatic hose (airline), if necessary, at the end of your cleaning and maintenance once the majority of dust has been removed. This will reduce the amount of dust sent into the environment through cleaning. While inspecting your Aerotech check for signs of precocious wear on the Fan Intake, Fan Outlets and Faceplate, especially if processing particularly abrasive materials such as Glass Reinforced Plastic (GRP). Should you find signs of wear please contact your Wirutex service representative.

⚠ When your Aerotech is not in use, keep it (and all components) in a safe dry place. Make sure that you also apply a light coating of protective oil against corrosion.

First run set-up

Begin with the recommended set-up indicated. If required, adjust your operating parameters in small increments until the desired performance is obtained. Save these parameters for future reference.

⚠ Maximum RPM

Do not exceed the n-max limit of 24,000 RPM. If you notice any change in the sound produced by your Aerotech System E / Aerotech System E Plus, immediately stop and thoroughly inspect it for any lodged debris or excess amounts of dust. If dust or debris is found, carefully remove all dust and debris before continuing use of your Aerotech.

Minimum RPM: 14,000 (less than 14,000 may cause insufficient airflow for complete dust evacuation).

Maximum RPM: 24,000 (n-max 24,000) Recommended minimum extraction system air velocity: 28 m/sec.

⚠ Note: It is standard practice when using any cutting tool with a large diameter to set the acceleration time of the CNC machine's electro spindle to not less than 4 seconds.

⚠ Compressed air nozzles

If your machine is equipped with nozzles to blow compressed air towards the tool during operation, these should be deactivated as they may reduce the effectiveness of the Aerotech System E / Aerotech System E Plus. They may however be activated and utilized to clean your Aerotech between machining cycles; spin your Aerotech in the opposite direction at a low RPM while blowing compressed air towards the Aerotech.

Recommended operating parameters

The efficiency of the Aerotech System E / Aerotech System E Plus is dictated by several key factors including RPM and feed speeds. The CNC machine center's dust hood and air velocity from the plant's centralized extraction system also have a determining role in the amount of dust removed. Recommended 'start-up' parameters to achieve total dust extraction are:
Nesting with Ø95 (air velocity ≥28m/sec)
18,000 RPM at ~14m/min feed
20,000 RPM at ~16m/min feed
22,000 RPM at ~18m/min feed
*24,000 RPM at ~20m/min feed
Routing with Ø105 (air velocity ≥28m/sec)
16,000 RPM at ~12m/min feed
18,000 RPM at ~14m/min feed
*20,000 RPM at ~16m/min feed
*22,000 RPM at ~18m/min feed

⚠ *Beware of noise levels at the RPMs indicated!

These parameters are based on an Aerotech System E / Aerotech System E Plus, cutting 19mm panel/material thickness with a Wirutex Insert (cutter). These parameters are to be used as a guideline ONLY. Your OPTIMAL operating parameters will likely differ due to a number of factors, such as: CNC machine center, available air velocity from your centralized extraction system, etc...

⚠ Programming

Aerotech System E is designed to evacuate dust. Avoid Nesting and Routing patterns that create pieces of debris that can become lodged in the Fan Intake. See FIG. L.

Aerotech System E Plus is designed to evacuate dust and fine pieces of debris while deflecting larger pieces of debris and off-cuts, preventing these from entering the device and blocking the Fan Outlets, although it is still recommended to avoid programming patterns that create pieces of debris, especially for Nesting operations.

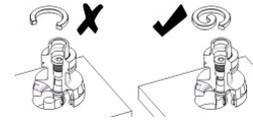


FIG. L

Parts you can remove for periodic maintenance or, if necessary, replacement

HSK20E Inserts (cutters) are drawn into position and secured to your Aerotech System E / Aerotech System E Plus via an M12 Fixing Screw (AERE02) ⑭ with a S8 head. This Fixing Screw is secured in position by a Locking Head (AERE01) ⑮ with a S10 head. Before removing these components your Aerotech should not have a cutting Insert attached. To remove these components place your Aerotech on the Mounting plate and, using an S10 T-wrench, turn the Locking Head (counter-clock-wise) and remove it, this will free the Fixing Screw. To remove the Fixing Screw simply remove your Aerotech from the Mounting Plate and, with one hand under the HSK63F cone, allow the Fixing screw to drop from your Aerotech. Reverse this procedure to replace the Fixing Screw and Locking Head. Tighten the Locking Head (clock-wise) to 25Nm. See FIG. M.

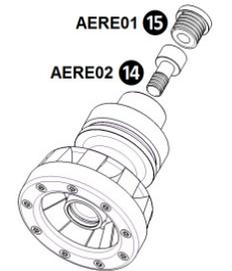


FIG. M

Regrinding your HSK20E Inserts (cutters)

You can regrind and service your HSK20E Inserts at any grinding center of your choice. Two types of precision holders are available for your grinding center to use (see Service Center Info overleaf).

Troubleshooting

Q: My Aerotech System E / Aerotech System E Plus always has a small amount of dust on it, even if I have just cleaned it and used it for one panel or part. Is there a problem with my tool? Will this dust affect the tools performance?

A1: It is normal for your Aerotech to have a thin layer of dust on it. While the tool is performing at 14,000 RPM+, no dust will accumulate; however, as the tool slows down, a small amount of remaining dust accumulates along the Fan Inlets, Fan Outlets, Fixed End Flange & Faceplate.

Q: I have noticed my tool is getting louder, is this normal?

A1: It is not normal for the performance of your Aerotech System E / Aerotech System E Plus to change in anyway. Once set-up with a cutting tool and tightened there are no moving parts. Please clean and inspect your Aerotech for debris that may have become lodged within. If this does not solve the problem, please contact your Wirutex service representative.

A2: Depending on the abrasive characteristics of the material you are cutting, your Aerotech may become worn on the Fan Intake, Fan Outlet and/or Faceplate, this is due to the

continuous erosion that occurs during operation. Although the Aerotech is case hardened to 58HRC, particularly abrasive materials such as Glass Reinforced Plastic (GRP) can cause premature wear, thus changing the airflow and sound created by your Aerotech.

Q: Why do I appear to have inadequate dust extraction from my Aerotech System E / Aerotech System E Plus?

A1: Ensure that the Floating Height between the surface of the material and the Aerotech is $> 2.0\text{mm}$. (Wirutex has not set a maximum floating height, although up to 6mm generally gives good to adequate extraction. The capability of the Aerotech to remove dust above a 6mm Floating Height will vary according to the characteristics of the panel/material being cut, the design of the cutter, the design of the CNC machine's extraction hood, and the capacity of the centralized dust evacuation system).

A2: Check the air velocity of the machines extraction system, if it is less than 28 m/sec. it may not be sufficient to remove the dust sent in to the extraction hood by the Aerotech. Also check that the dust evacuation hose above the machine does not have any acute bends that may interfere with the

air velocity of the centralized dust evacuation system.

A3: Increase the RPM by increments of 1,000 until an acceptable level of dust extraction is achieved or until the maximum RPM of 24,000 is reached.

Q: I occasionally get circular burn or sanding marks on the surface of my board, why does this happen?

A1: Ensure the Floating Height between the material's surface and the Aerotech System E / Aerotech System E Plus is $\geq 2\text{mm}$.

A2: It may happen that when you are Nesting (especially in the case of MFC/particleboard) off-cuts break away from the board and become trapped between the Aerotech and the face of the board. To help prevent this, ensure that you program a distance between the components within your nest to approximately 2.0mm greater than the diameter of the tool. Avoid leaving thin strips of material between odd size components, these can disintegrate and become the cause of this problem.

Q: Can I reduce the sound produced by my Aerotech System E / Aerotech System E Plus?

A1: Avoid free-spinning the Aerotech and lower the extraction hood as soon possible. Once the Aerotech enters the panel/material the

sound level is noticeably reduced as the material alters the acoustics and air flow of the Aerotech.

A2: Reduce the operating RPM by increments of 1,000 until the sound level is acceptable.

A3: The 'Plus' range emits ~10db less noise than the equivalent versions without the Faceplate.

Q: Dust is escaping through the brushes of the extraction hood, how can I stop this?

A1: The Aerotech System E / Aerotech System E Plus is extremely efficient at evacuating dust from the point of cut and accelerating it into the machine's extraction hood. Make sure your extraction hood is completely lowered and is not worn or damaged.

A2: Ensure that your CNC machine's extraction hood is up-to-date. Legislations passed in 2008 have improved the performance, protection and safety features of dust extraction hoods. Contact your Wirutex representative or machine supplier for consultation.

Q: My parts have a thin layer of very fine dust on their surface!

A1: This can be caused by the static electricity generated during cutting operations. It can be improved, or in some cases resolved, by ensuring that your machine is correctly earthed.

SERVICE CENTER INFO

Equipment & spare parts for your Service Center. Product range: Aerotech System E & Aerotech System E Plus with HSK20E Inserts (cutters)

Holder: HSK63F to HSK20E

Adapter: d:25 to HSK20E

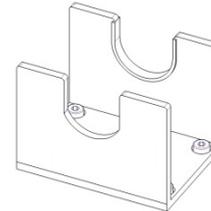


C05343



C05344

Mounting Plate
(S8 T-wrench included)

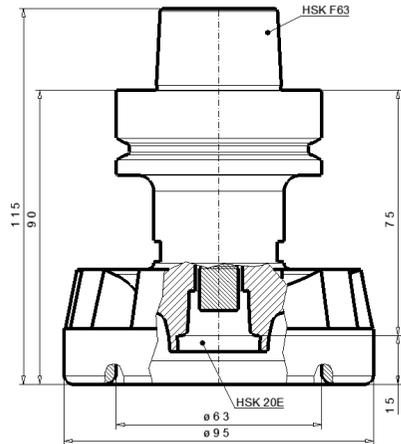


C05391

SPEC CHART

Product range for Aerotech System E 95 (technical details and recommendations). Recommended for Nesting - Aerotech diameter $\varnothing 95\text{mm}$
Weight (without Insert/cutter) 1.9 kg. N-max 24.000 RPM - For use with HSK20E Inserts (cutters)

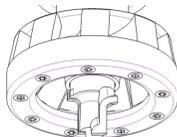
Product name: Aerotech System E 95
Article code: **C05201**



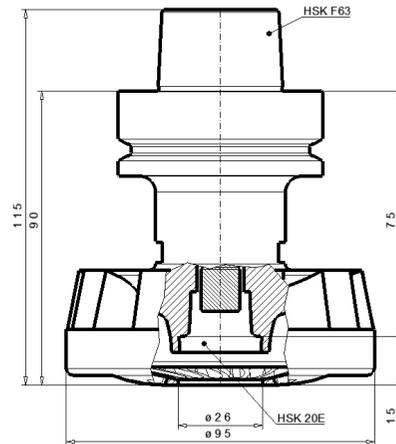
C05201 can use both profiled and straight Inserts (cutters)

Ideal application: Nesting MDF doors

Max Tool Diameter: $\varnothing 62.5\text{mm}$



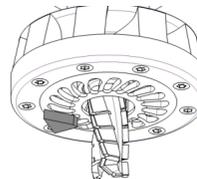
Product name: Aerotech System E 95 Plus
Article code: **C05203**



C05203 can ONLY use straight Inserts (cutters)

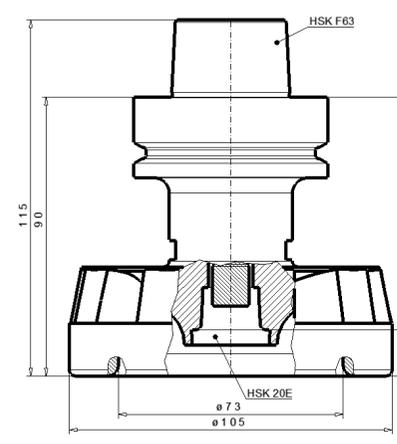
Ideal application: Nesting chipboard cabinet parts - operations that are likely produce large pieces of debris and off-cuts

Max Tool Diameter: $\varnothing 25.5\text{mm}$



Product range Aerotech System E $\varnothing 105$ (technical details and recommendations). Recommended for Routing - Aerotech diameter $\varnothing 105\text{mm}$
Weight (without Insert/cutter) 2.1 kg. N-max 24.000 RPM (recommended maximum RPM 22.000) - For use with HSK20E Inserts (cutters)

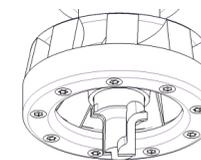
Product name: Aerotech System E 105
Article code: **C05202**



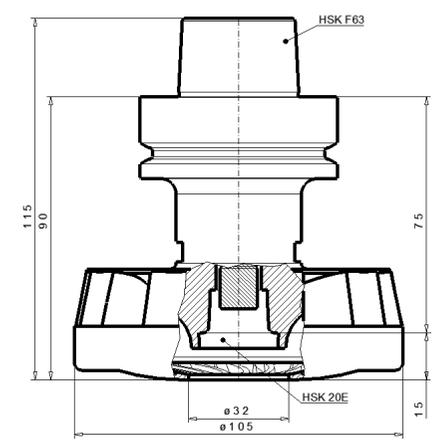
C05202 can use both profiled and straight Inserts (cutters)

Ideal application: Profiling thick panel based materials on POD & RAIL machines that do not produce large pieces of debris and off-cuts

Max Tool Diameter: $\varnothing 72.5\text{mm}$



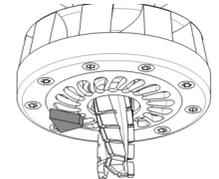
Product name: Aerotech System E 105 Plus
Article code: **C05204**



C05204 can ONLY use straight Inserts (cutters)

Ideal application: Routing thick panel based materials on POD & RAIL machines that are likely to produce large pieces of debris and off-cuts

Max Tool Diameter: $\varnothing 31.5\text{mm}$




Aerotech®
Dust Free Nesting and Routing
System E - System E Plus

Instructions and information

Aerotech EP1940585
Faceplate EP10173827

 **wirutex**
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