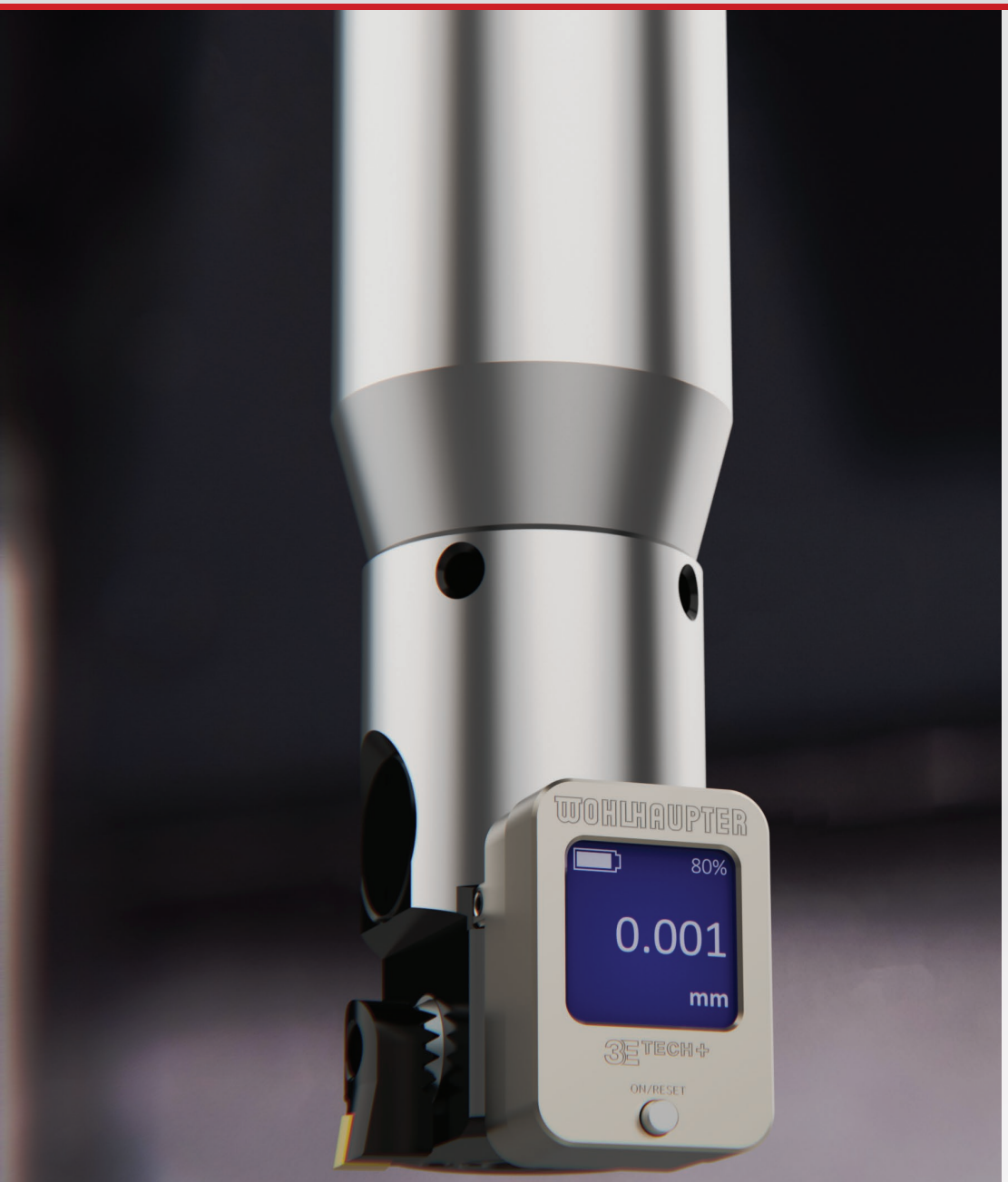
boring SOLUTIONS

www.alliedmachine.com



WOHLHAUPTER®
BORING SOLUTIONS

From high precision to high production, Wohlhaupter has the right solution for your hole finishing applications.

Versatile range of tools for all roughing and finishing applications

High precision with absolute *repeatability* to ensure every part is held to *tolerance*

BORING | DRILLING | REAMING | BURNISHING | THREADING | SPECIALS

ALLIED MACHINE & ENGINEERING

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PRIMEBORE

Ø: 0.118" - 8.189" *(3.00 mm - 208.00 mm)*

With over 30 years of development, the Wohlhaupter PrimeBore offers an economic solution with versatility and precision.

VARIOBORE

Ø: 0.016" - 5.984" *(0.40 mm - 152.00 mm)*

Offering precision and versatility, the VarioBore boring head provides convenient and accurate diameter adjustments.

NOTE: 3E[TECH+] adjustment accuracy of 0.00005" or 0.001 mm and vernier adjustment accuracy of 0.0001" or 0.002 mm on diameter.

DIGIBORE

Ø: 0.118" - 8.189" *(3.00 mm - 208.00 mm)*

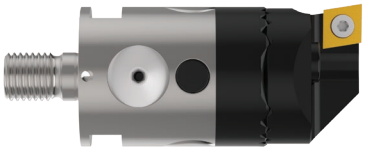
The digital display allows for quick and accurate diameter corrections at the machine, making this your stress-free choice.

DO YOU BORE DIFFERENT HOLE SIZES DAILY?

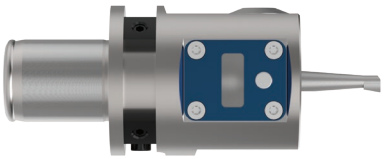
WE HAVE A KIT FOR THAT

- **COST SAVINGS** OVER BUYING INDIVIDUAL COMPONENTS
- BROAD SELECTION OF **DIAMETER RANGES**
- EASY **CONVENIENT STORAGE** AND ORGANIZATION
- **VERSATILE** SETUPS AND **IMPROVED READINESS**

Kits for
VarioBore, DigiBore, PrimeBore
with various diameter ranges.

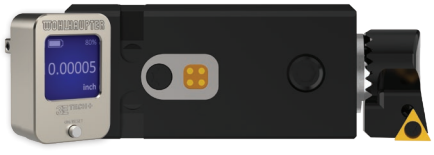


249 (248)
Ø: 0.118" - 1.189"
(3.00 mm - 30.20 mm)



511 (510)
Ø: 0.016" - 1.339"
(0.40 mm - 12.00 mm)

NOTE: 3E[TECH+] adjustment accuracy of 0.00005" or 0.001 mm and vernier adjustment accuracy of 0.0001" or 0.002 mm on diameter.



538 (537)
Ø: 3.937" - 128.150"
(100.00 mm - 3255.00 mm)

DIGITAL 3E TECH+ 420 (410) & 465 (464) BALANCE

420 (410) and 465 (464) balance digital boring heads are equipped with a 3E^{TECH+} docking port for easy digital adjustments.

420 (410)
Ø: 0.787" - 1.142"
(20.00 mm - 29.00 mm)

465 (464) Balance
Ø: 1.142" - 8.071"
(29.00 mm - 205.00 mm)

ANALOG 365 (364) BALANCE & 465 (464) BALANCE

Analog 365 (364) balance and 465 (464) balance boring heads offer precision boring with automatic balancing.

365 (364) Balance
Ø: 0.787" - 1.161"
(20.00 mm - 29.50 mm)

465 (464) Balance
Ø: 1.142" - 8.071"
(29.00 mm - 205.00 mm)

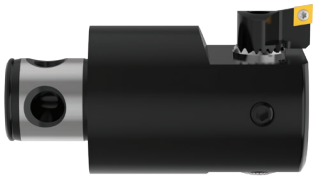
DIGITAL 565 (564) BALANCE

Digital 565 (564) balance boring heads feature automatic balancing with a digital display.

565 (564) Balance
Ø: 1.969" - 8.071"
(50.00 mm - 205.00 mm)

ANALOG 320 (310)

Analog 320 (310) boring heads are engineered with wear and tear in mind.



320 (310)
Ø: 0.787" - 8.071"
(20.00 mm - 205.00 mm)

3E TECH+ DIGITAL READOUT MODULE

Improve productivity and quality with the 3E^{TECH+} external digital readout module that docks onto boring heads and cassettes to make easy diameter adjustments at the machine.

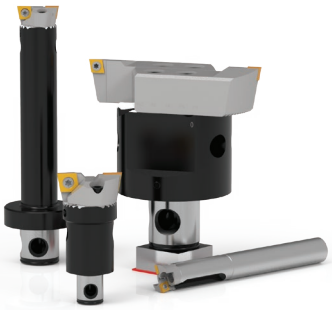
NOTE: Adjustment accuracy of 0.00005" or 0.001 mm on diameter

ES BORE LAY DOWN CARTRIDGE

Available with digital 3E^{TECH+} or analog adjustment
Ø: ≥ 1.102" *(28.00 mm)*

The ES-Bore lay down cartridge can easily be mounted onto the body of a custom tool while the dimensions allow the cartridge to fit on existing bodies and replace current lay down cartridges.

ROUGH *MACHINING*



SAME LEVEL ROUGH BORING

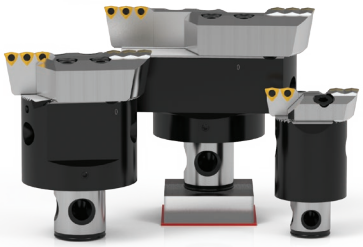
Ø: 0.768" - 128.150" *(19.50 mm - 3255.00 mm)*

Both insert holders are set at the same height level providing a double effective feed rate. Tangential same level roughing insert holders are also available for applications with long overhangs or larger cutting depths.

HEIGHT DISPLACED ROUGH BORING

Ø: 1.142" - 128.150" *(29.00 mm - 3255.00 mm)*

The height displacement provides the ability to offset the insert holders, removing more material. They are also offered in height displaced tangential roughing insert holders for applications with long overhangs or larger cutting depths.



VolCut

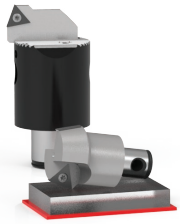
Ø: 2.559" - 128.150" *(65.00 mm - 3255.00 mm)*

VolCut insert holders are engineered to remove a massive amount of material in just one cut in large diameter rough boring applications. This versatile tool adapts to Wohlhaupter's modular Twin Cutter bodies and utilizes standard inserts from the Revolution Drill® and Opening Drill® product lines.

CHAMFERING

Ø: 0.748" - 127.874"
(19.00 mm - 3248.00 mm)

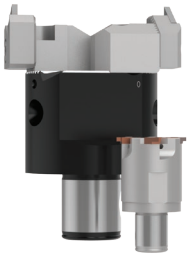
Chamfer holes from 15°, 20°, 30°, and 45° approach angles and various diameters.



GROOVING

Axial Ø: 0.787" - 128.150" (20.00 mm - 3255.00 mm)
Radial Ø: 0.787" - 3.110" (20.00 mm - 79.00 mm)

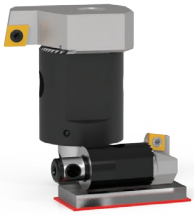
Create grooves with radial and axial grooving replaceable insert rough machining tools.



REVERSE MACHINING

Ø: 1.142" - 131.102"
(29.00 mm - 3330.00 mm)

Complete back boring applications with reverse machining insert holders.



ROUGH & FINISH MACHINING

Combi-Line

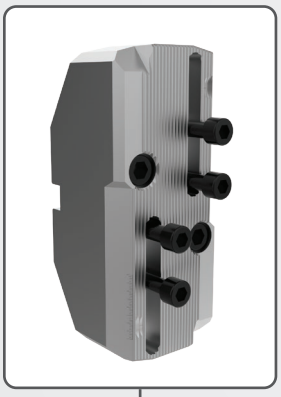
Ø: 0.965" - 7.913" *(24.50 mm - 201.00 mm)*

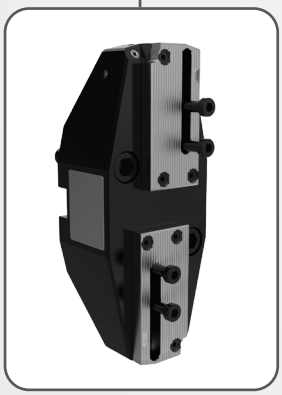
The Wohlhaupter Combi-Line combines both rough and finish boring into one operation. The leading insert holder is the roughing cutting edge while the outboard holder finishes the hole, saving you time and money.

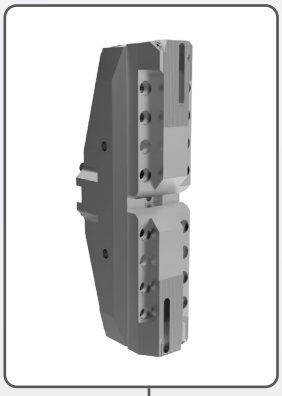
LARGE DIAMETER BORING

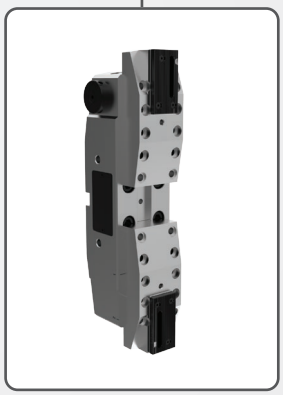
Basic D60 Slides
Ø: 7.874" - 19.881"
(200.00 mm - 505.00 mm)

Flex Slides
Ø: 19.685" - 128.150"
(500.00 mm - 3255.00 mm)









Basic D40 Slides
Ø: 7.874" - 20.472"
(200.00 mm - 520.00 mm)

Eco Slides
Ø: 18.307" - 40.157"
(465.00 mm - 1020.00 mm)

Cartridge Options
Rough & Finish | Chamfering
Back Boring | Axial Grooving

INTERMEDIATE MODULES

Increase tool stability and add flexibility to setups with Wohlhaupter reducers, extensions, and NOVITECH® vibration damping intermediate modules.

MASTER SHANKS

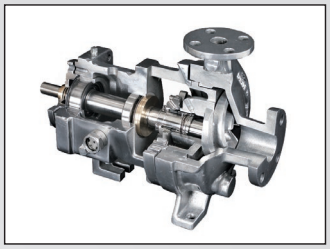
Wohlhaupter MVS connection shanks provide a high level of accuracy when building or replacing components. Our master shanks adapt to any machine tool spindle, including dual contact, making it easy to find the shank you need.

SPECIAL BORING TOOLS

When it comes to special solutions for customers, Wohlhaupter has unique capabilities to effectively design and develop custom boring tools. Our special boring tools are designed for specific machines, processes, and materials to help decrease your cycle time.

WOHLHAUPTER® | 320 *BORING HEAD* with NOVI TECH®

Time is money, so make it count.



If you want to improve your machining processes, cycle time is a key factor to examine. After all, the longer it takes you to produce a part, the fewer parts you can produce in a given time. Our customer was experiencing lengthy cycle times while machining pumps from gray cast iron. The parts required three bored holes, each with a 12" *(304.80 mm)* depth and a 22" *(558.80 mm)* reach.

In order to free up machine time, the customer questioned if their process could be more efficient. The main objectives were to decrease the current cycle time and to maintain a160 Ra finish, which was required to perform the burnishing process that followed.

The previous tooling ran at a slow 0.47 IPM *(11.94 mm/min)* and a paint-drying 84-minute cycle time to bore the three holes on each part. With our **Wohlhaupter 320 Boring Head** utilizing the **NOVI TECH Vibration Damping Module**, the customer increased to a more efficient 3.75 IPM *(95.25 mm/min)* and slashed the cycle time to 10.5 minutes *(an 87% decrease)*. Along with the increased speed, the Wohlhaupter tooling also achieved a 155 Ra finish, accomplishing everything the customer needed.

The Wohlhaupter solution reduced the process cycle time by 74 minutes. Improvements in speed and cycle time can free up machine hours, which means more throughput and higher profit for your company. ***Are you losing money on applications with substantially long cycle times?***

Product:	Wohlhaupter 320 Boring Head with NOVI TECH
Objectives:	(1) Decrease cycle time (2) Maintain 160 Ra hole finish
Industry:	Oil & gas/petrochemical
Part:	Pump
Material:	Gray cast iron
Hole Ø:	5.500" *(139.70 mm)*
Hole Depth:	12.000" *(304.80 mm)*

Measure	Competitor Boring Head	320 Boring Head w/ NOVI TECH
RPM	39	469
Speed Rate	56 SFM *(17.07 M/min)*	675 SFM *(205.74 M/min)*
Feed Rate	0.012 IPR *(0.31 mm/rev)*	0.008 IPR *(0.20 mm/rev)*
Penetration Rate	0.47 IPM *(11.94 mm/min)*	3.75 IPM *(95.25 mm/min)*
Cycle Time (per hole)	27 min 54 sec	3 min 32 sec
Hole Finish	160 Ra	155 Ra

- Boring head 320 series ***Item No. 320008***
- NOVI TECH Vibration dampened intermediate module ***Item No. 519005***
- Master shank ***Item No. 353024***

The Wohlhaupter 320 boring head with the NOVI TECH vibration damping module provided:

- ✓ Machining up to 10xD
- ✓ Increased penetration rate
- ✓ Decreased cycle time
- ✓ Excellent finish in deep hole application

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