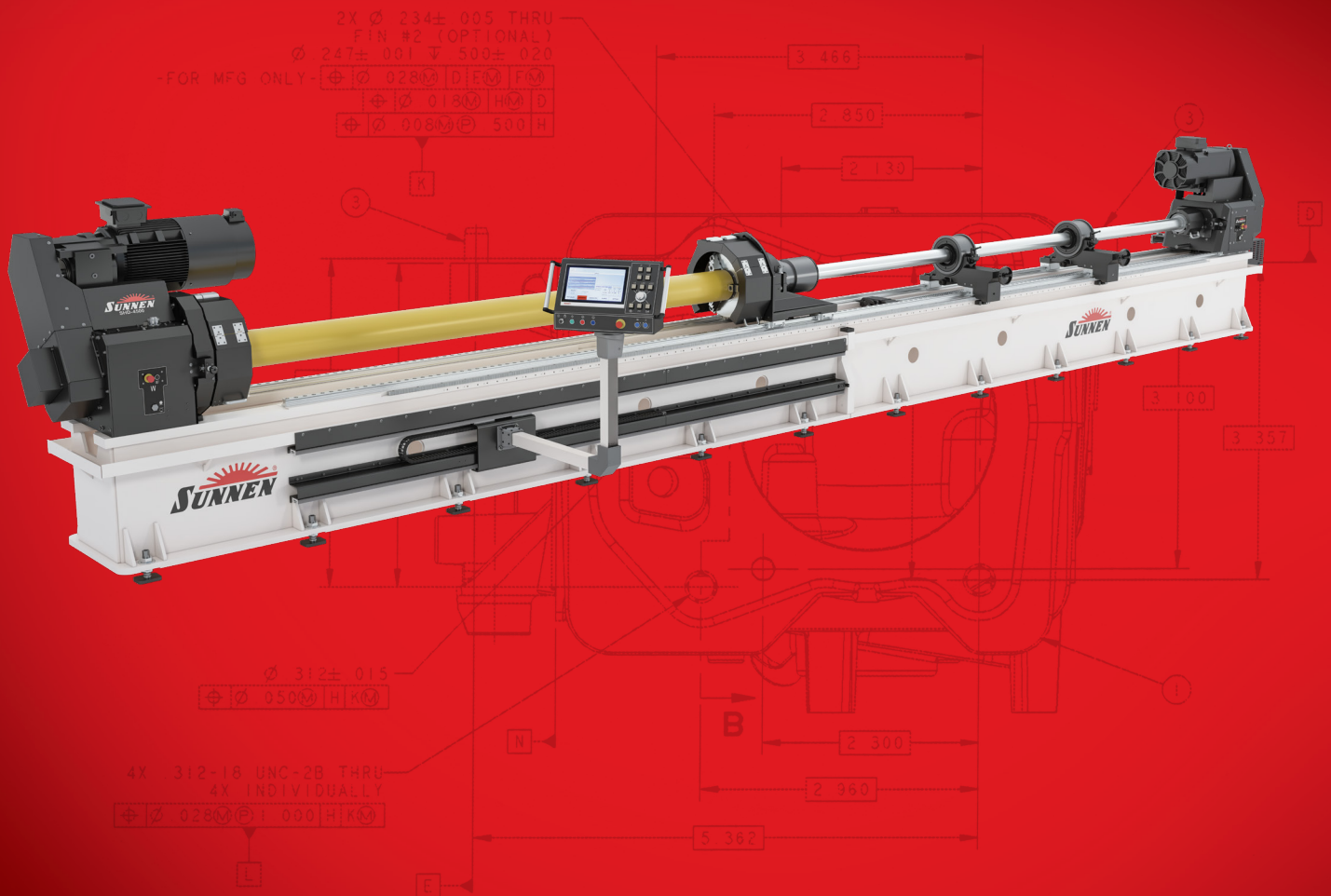




ABOVE AND BEYOND HONING

# SHDD SERIES

BTA DEEP-HOLE DRILLING SYSTEMS



# SUNNEN'S SHDD SERIES BTA DEEP-HOLE DRILLING



**Sunnen Products Company**, the global leader in bore sizing and finishing technology since 1924, now offers a cost-effective BTA drilling solution... the Sunnen SHDD Series Deep-Hole Drilling Systems. The SHDD systems were designed with input from the deep-hole drilling industry. Every feature was scrutinized to improve the productivity and reliability of the machine. This design and testing effort coupled with the use of heavy-duty name brand components ensures years of trouble free operation.

SHDD Series systems can achieve tight diameter control, straightness, and superior surface finish

in a variety of workpieces and materials from aluminum to super-alloys. Three standard machine models are available (**2-meter, 4-meter and 6-meter** part length capable) along with BTA-style drills, drill tubes, cutters, coolant systems and coolants.

The heavy-duty SHDD series includes the latest system controls, allowing users to achieve their manufacturing tolerances and production requirements reliably, accurately, and efficiently. Workpiece change-over and run times are minimized ensuring process profitability. All machines are engineered and built in the USA, and include a 3-year warranty, backed by Sunnen's extensive global service and support network.



**SUNNEN**<sup>®</sup>



# SYSTEMS FOR IMPROVED PRODUCTION RATES



The new Sunnen SHDD-series is designed around the BTA deep-hole drilling process in cylindrical parts. However, it is also capable of a wide variety of other similar machine processes, including counter boring, pull boring, trepanning, bottom forming, and skiving/roller burnishing.

Three different operating modes are available to match the specific workpiece application: tool rotates/part stationary; part rotates/tool stationary; or, tool rotates/part counter rotates. The SHDD-series is a great choice for applications spanning many industries such as oil and gas, ship building, aerospace, hydraulics/pneumatics, die/mold making and military armaments.

## Typical applications include:

- Drill collars
- Drill pipes
- Submersible pumps
- Hydraulic fracturing components
- Ship rotor shafts
- Landing gears
- Turbine shafts
- Refueling pipes
- Large hydraulic cylinders
- Wind power turbine shafts
- Cannon barrels

*Your Sunnen Technical Specialist will work with you to determine the best solution for your needs – it's all part of the added value you get with Sunnen. Plus, our worldwide sales and service team provides comprehensive support for the installation and operation of every system we make.*

*Whatever your need, we have the expertise and product range to create the right solution for you and the dedication to support you for the long run.*

## Buy with confidence



Sunnen backs the quality of its machines with a "best in the business" 3-year standard machine warranty.



## EASY-TO-USE, EFFICIENT, HEAVY-DUTY



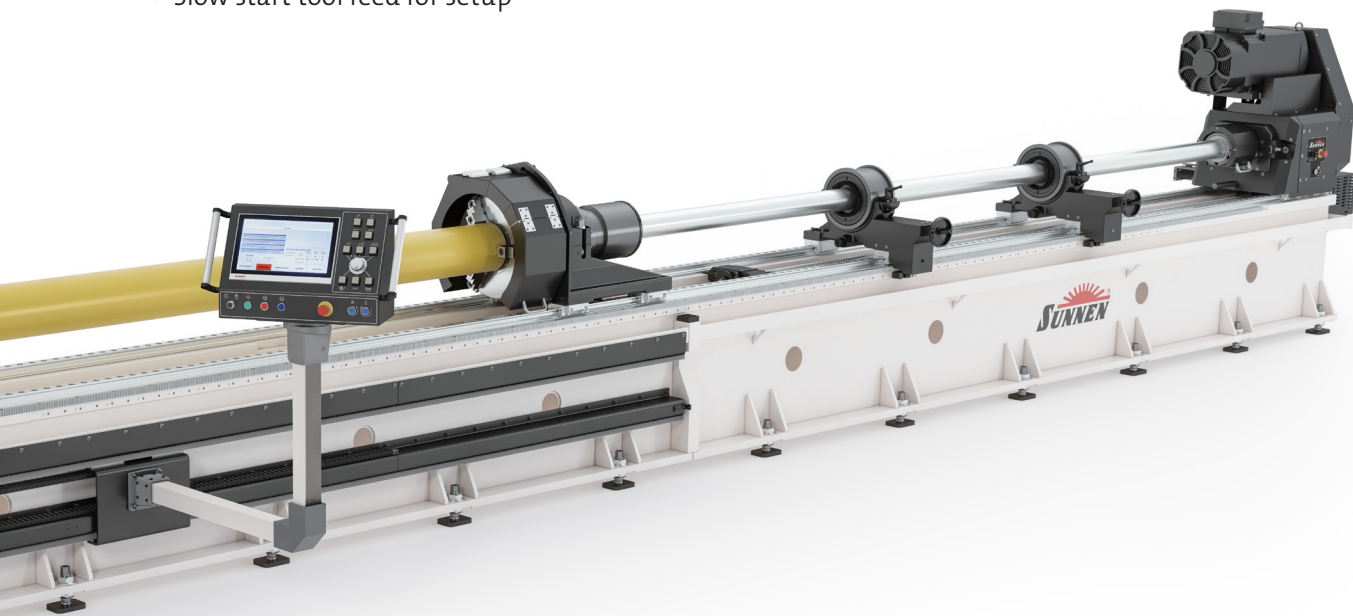
- **Available in three standard models**
  - 2-meter maximum part length (SHD-2500D)
  - 4-meter maximum part length (SHD-4500D)
  - 6-meter maximum part length (SHD-6500D)
- Large 394 mm (15.5 in) color HMI with intuitive controls for ease of use.
- Heavy-duty Bosch-Rexroth 55 mm (2.16 in) linear rails for maximum durability.
- Standard safety system with a combination of multiple E-stops, light curtains, interlocked guarding and fencing.
- 67 kw (90 hp) tool motor with headstock drive for optimum power.
- Beckhoff servo driven heavy-duty ball screws for tool feed.
  - 80 mm ball screw (3.15 in) SHD 2500D / 4500D
  - 100 mm ball screw (3.84 in) SHD 6500D
- Electrical enclosure air conditioning unit standard to protect critical electronics in high temperature environments.
- Heavy-duty welded base.
- Heavy-duty 3-jaw chucks standard
- Automatic lubrication system for ball screw, rack and pinion, and linear rails standard.
- Heavy-duty servo rack and pinion driven work piece positioning and clamping.
- Spindle carriage control station for ease of driveshaft installation.
- Sunnen is the complete system supplier ... machines, tools, chip management, cooling systems and cutting fluids.
- Standard 38 kw (50 HP) workpiece headstock drive (counter rotation)



## SUNNEN DESIGNED AND DEVELOPED INTUITIVE CONTROL SYSTEM

### Features include:

- Beckhoff PLC with 394 mm (15.5 in) color touchscreen
- All machine functions controlled from the operator station
- Real time graphical display of tool position, tool feed load, spindle loads, and coolant pressure and volume
- Two-button part-to-part mode for high production operation
- Slow start tool feed for setup
- Tool protection function
- USB port for ease of backup
- Metric/inch units screen selectat
- Up to 500 part setups can be saved and retrieved
- Machine diagnostics
- On-screen, multi-language selection



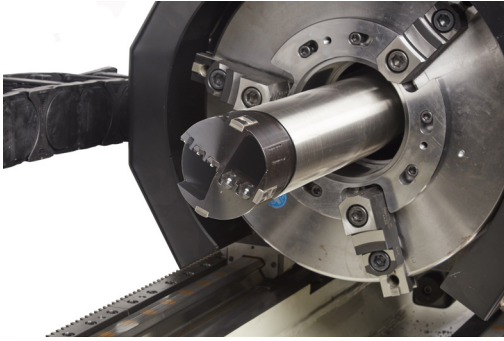
## HEAVY-DUTY SUNNEN DESIGNED AND BUILT COOLANT SYSTEM

### Features Include:

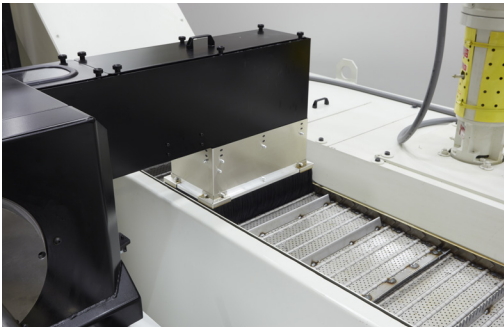
- Modular clean and dirty tanks with 6245 liter (1650 gallon) maximum capacity and 3765 liter (1000 gallon) operating capacity
- Heavy-duty welded construction using 4.75 mm (.187 in) plate with a double wall option available
- High flow 10-micron, four-bag filtration system
- Heavy-duty screw type pump with 757 lpm (200 gpm) max flow and 5.2MPa (750 psig) max pressure
- 70-micron inlet filter
- Standard chiller for hot environments
- Designed for maintainability with multiple level sensors, clean-out ports and instrumentation
- Heavy-duty chip conveyor
- Active coolant level monitoring



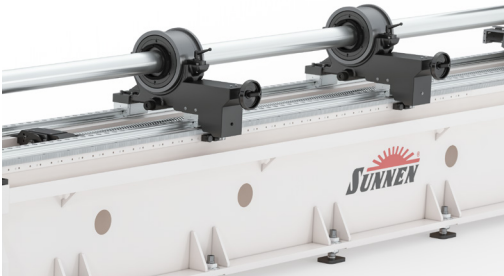
## THE SHDD SERIES UP CLOSE



Standard heavy-duty  
3-jaw chuck



Automatic chip  
removal system



Heavy-duty tool  
drive shaft  
vibration dampeners

### *SPECIFICATIONS:*

**SOLID DRILL BORE DIAMETER RANGE (ID):**  
19- 127 mm (.8- 5.0 in) - DRILLING  
UP TO 7.0 in COUNTERBORING - TREPPANNING

**OUTSIDE DIAMETER RANGE (OD):**  
508 mm MAX (20 in)

**MAXIMUM PART LENGTH:**  
SHD-2500D (2-METER): 2000 mm (78.7 in)  
SHD-4500D (4-METER): 4000 mm (157.5 in)  
SHD-6500D (6-METER) 6000 mm (236 in)

**TOOL HEADSTOCK ROTATIONAL SPEED:**  
1150 RPM maximum

**TOOL HEADSTOCK LINEAR SPEED:**  
125 mm/sec max (4.92 in/second)

**TOOL HEADSTOCK POWER:**  
67 kW (90 hp)

**TOOL FEED FORCE:**  
45 kN (10,116 LBF) max

**WORKPIECE HEADSTOCK ROTATIONAL SPEED:**  
275 RPM maximum

**WORKPIECE HEADSTOCK POWER:**  
36 kW (50 hp)

**MAXIMUM COOLANT FLOW:**  
750 liters per minute (200 gpm)

**MAXIMUM COOLANT PRESSURE**  
5.2 MPA (750 PSIG)

**VOLTAGES AVAILABLE:**  
Electrical System:  
400 VAC 50 Hz 3 phase  
460 VAC 60 Hz 3 Phase

## SHDD MACHINE OPTIONS

- Pull boring capability 178 mm (7") maximum (large bore pressure head option required)
- Lantern chuck for pull boring
- Front chip exhaust; full conveyor and chip box
- Large bore workpiece pressure head with a maximum capability of 178 mm (7")
- 4-jaw chucks for pressure head and workpiece headstock
- Part roller type steady rests: 25 mm - 356 mm (1' - 14') O.D. Range
- Fully enclosed work area guarding
- Camera at chip exit w/ability to view through operator display
- Remote process monitoring (OPCUA)
- Part bar code scanning capability
- Drive bar bushings, collets, packing glands, and drive adapters
- Rear chuck for workpiece headstock
- Additional vibration dampener – one additional unit may be added on each model machine. Note: addition of optional unit reduces part length capacity by 310 mm (12.2")

# SUNNEN'S BTA DEEP-HOLE DRILLING TOOLS AND ACCESSORIES

Sunnen is your single source supplier of deep-hole machining tools, cutting oils and accessories designed to work with Sunnen and other machines.



## SOLID DRILLING TOOLS

Brazed and indexable tools in a wide range of diameters



## TREPANNING TOOLS

Indexable trepanning tools for most applications



## COUNTER BORING/REAMING TOOLS

Push, pull and piloted styles available



## FORM TOOLS

Designed for your specific blind bore application



## DEEP-HOLE MACHINING OIL

Provides optimal lubricity and chip flushing capability



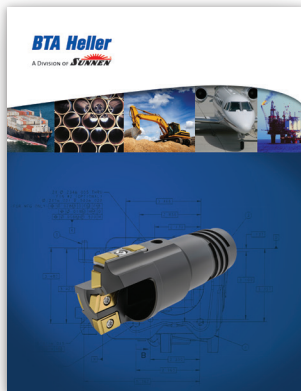
## GUIDE PADS

Solid carbide and brazed-style guide pads available



## INSERTS

Available in multiple carbide grades, coatings and chip breaker designs



## FIND OUT MORE

For additional details on deep-hole machining tools and accessories for the SHDD Series Deep-Hole Drills, please ask for Catalog # BTAH-1000 or visit [www.btaheller.com](http://www.btaheller.com)



A LEGACY OF EXCELLENCE SINCE 1924.

## SUNNEN WORLDWIDE



With world headquarters in St. Louis, Missouri, Sunnen is the largest fully integrated company in the world specializing in precision bore creation, sizing and finishing equipment. A Sunnen solution might include honing, lapping, skiving/roller burnishing or deep hole machining...or a combination of those processes.

Our 13 international subsidiaries and over 40 authorized distributors allow us to deliver top quality Sunnen machines, tools, service and training wherever they are needed around the globe.

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