

# SDSF Small Diameter Split Frame



Axial Tool Slide accessory  
for socket weld removal



Wheel Cutting Module  
accessory for FME cutting



Counterbore attachment  
fits all models

## Optimized for Low Clearance Environments

E.H. Wachs® SDSF Small Diameter Split Frames are the smallest, most compact member of the Wachs split frame family, and are designed for cutting, beveling and counterboring pipe and tubing from OD 0.5in - 6in (DN 15-150). Six models are available in 1in (25.4 mm) increments, with additional sizes by special order.

Like all E.H. Wachs split frame clamshell style machines the SDSF is designed to “split” in half to fit over inline pipe, or can be slipped over open ended pipe. The SDSF serves as the basis of Wachs axial and radial socket weld removal kits that remove the weld filler metal without sacrificing the base material, an important consideration in complex assemblies.



# SDSF Split Frame



3 HP RIGHT ANGLE DRIVE



ELECTRIC DRIVE



AXIAL FEED TRIP



RADIAL FEED TRIP

STANDARD  
PINION



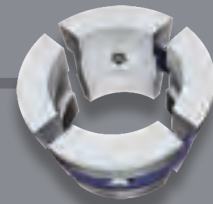
FRONT DRIVE  
PINION



CENTERING LEGS & EXTENSIONS



SDSF  
RING  
SET



SELF-CENTERING COLLET



COUNTERBORE SLIDE



AXIAL FEED SLIDE



RADIAL FEED SLIDE



FME CHIPLESS CUTTING  
WHEEL SLIDE

**SDSF**

# SDSF Split Frame Overview

## Portable Pipe Cutting & Beveling

- SDSF quickly splits open to mount around the OD of inline pipe
- Machines carbon steel, stainless steel and alloys, e.g. Hastelloy™, Inconel™ and other high-performance materials
- Cuts and bevels up to 0.438in (11.1 mm) wall thickness
- Low clearance design requires minimal space for setup and operation
- Self-squaring pipe clamping system, using either collets or integrated, close tolerance legs with wide feet stability
- Low friction adjustable bearing system provides maximum stability and extended machine life
- Fully enclosed bearing and drive gear system for operational safety
- Infinite motor positioning
- Modular tool slides
- Lever type trip actuation for safety
- Spring loaded axial trip for crash resistance
- Improved radial trip geometry for crash resistance and durability
- Improved bearing adjustment design
- Improved durability in pinion gear bearing arrangement
- Easier assembly and disassembly of frame halves
- Improved sealing for chip exclusion
- Captive fasteners used for all accessories
- Reduced fastener count for simplified inventory. Only 3 hex wrench sizes required to operate machine
- Rings from 1-6in (DN 15-150) can mount with collets. Clamping feet can be used on 2in (DN30) and up

## Small Size, Big Capabilities

The SDSF is ideal anywhere pipe and tube are arrayed in tight places and finds many uses in power generation, oil and gas and the shipbuilding industries. Operating on air or electric power using standard Wachs motors and adapters, the SDSF is part of a complete system that includes a broad range of tool slides and accessories for maximum versatility. As with all E.H. Wachs products, the Small Diameter Split Frame is built with Wachs legendary quality and durability for years of reliable service.

Like all Wachs split frames the SDSF is designed to simultaneously cut and bevel pipe and tube with Wachs parting and beveling tool slides. It's also the basis of Wachs specialized Socket Weld Removal kits, in both axial and radial configurations. The FME (Foreign Material Exclusion) chipless cutting module makes the SDSF the perfect split frame for the high purity market. So while the SDSF is Wachs smallest split frame, it's big in capabilities.

## Socket Weld Removal

SDSF split frames are the building block of Wachs socket weld removal machines. They're designed to remove couplers and elbows from existing piping systems by machining away the weld material that joins them. This is done without sacrificing the base material – a vital consideration in the repair or modification of complex process systems. These machines designs incorporate all that we've learned from years of socket weld removal experience. They're the easiest to use and most productive socket weld removal machines offered anywhere.

## Foreign Material Exclusion (FME)

Wachs FME (Foreign Material Exclusion) is a chipless wheel cutting module designed for use with the SDSF. FME is critical in high purity and process applications where the introduction of chip debris cannot be tolerated. Examples include the food, dairy and pharmaceutical industries and the highly controlled power generation field.



Front Drive Pinion



Bevel Prep

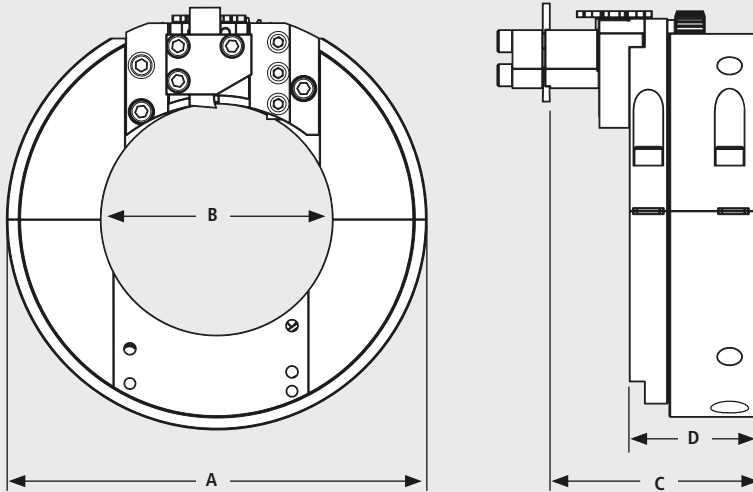


Socket Weld Removal



FME Wheel Cutting

# SDSF Split Frame Specifications



SPECIFICATIONS	SDSF 1.0	SDSF 2.0	SDSF 3.0	SDSF 4.0	SDSF 5.0	SDSF 6.0
Machine Capacity OD	The machine capacity depends on the mounting system and on the operating method.					
"A" Machine OD	5in (127 mm)	5.689in (145 mm)	6.87in (175 mm)	7.815in (199 mm)	8.937in (227 mm)	9.937in (252 mm)
"B" Machine ID	1.563in (40 mm)	2.626in (67 mm)	3.75in (95 mm)	4.752in (121 mm)	5.878in (149 mm)	6.878in (175 mm)
"C" Parting line	3.469in (88 mm)					
"D" Machine thickness	2.531in (64 mm)					2.154in (55 mm)

## System Function:

Part off, bevel and counterbore pipe and tube; radial and axial socket weld removal; wheel cutting

**Cutting tool surface speed:** 10 m/min, 2in 40 sf/m 4in

**Drive options:** Pneumatic or electric

## Air requirements:

35 ft<sup>3</sup>/min at 90 psi  
(1 m<sup>3</sup>/min at 6.2 BAR)

**Electrical requirements:** 230/120 Volt

**Feed method:** Star wheel

## Feed rate:

Fixed at 0.0031in (0.079 mm) per trip

**Construction:** Alloy steel

**Tool slide:** Radial or axial feed, cut and bevel, counterbore, FME module

**Tool stroke:** 0.468in (11.9 mm)

**Finish:** Hard chrome coating

**Tooling:** Axial or radial socket weld removal tooling, cut/bevel tooling. High speed steel or carbide

**Packaging:** Heavy duty carrying case

## Optional Equipment

- Pneumatic or electric drive motor
- Genuine Wachs Tooling
- Axial feed tool slide
- Radial feed tool slide set
- Bench mount
- Front drive pinion housing
- Counterbore attachment
- FME tool slide
- Aluminum collet sets
- Clamp pads sets
- Radial socket weld slide

Add frames, slides, collets, collet nut and spanner wrench, or clamping feet to complete machine.



SDSF Counterbore



Axial Socket Weld Removal



SDSF Axial Turning



SDSF Counterbore Bevel

# SDSF Split Frame Kits

## SDSF Socket Weld Removal

For socket weld removal, available as radial or axial feed kits.

### Includes:

- Frame assemblies 1in and 2in (DN 25 and DN 50)
- Axial and/or radial feed socket weld removal tool slides
- Aluminum collets for pipes with Ø:
  - 0.5in / 0.75in / 1in / 1.25in / 1.5in / 2in (12.7 / 19.05 / 25.4 / 31.75 / 38.1 / 50.8 mm)
- Clamp foot and extension leg kit for 2in (50.8 mm) frame\*
- 1 Air drive
- Spare fastener kit
- Storage case
- Operating hand tools
- Manual

\*Collet only 1in (25.4mm) and below.

ITEM	DRIVETYPE	PIPE OD	CODE	PART #
SDSF Kit "Axial Feed"	Pneumatic	0.5-2in (12.7-50.8 mm)	980 000 029	80-0000-AX
SDSF Kit "Radial Feed"	Pneumatic	0.5-2in (12.7-50.8 mm)	980 000 072	80-0000-RA

## SDSF Split Frame Ring Sets

Add slides, collets or legs\*, drive, collet nut and spanner wrench for complete machine. See individual ring size accessory listings on the following pages.

### Includes:

- Individual Split Frame
- Pinion housing
- Heavy duty, watertight storage / carrying case
- Spare fastener kit
- Hand tools
- Manual

ITEM	PIPE OD	CODE	PART #
SDSF Split Frame 1.0*	1in (25mm)	980 400 010	80-4000-10
SDSF Split Frame 2.0	2in (51mm)	980 400 020	80-4000-20
SDSF Split Frame 3.0	3in (76mm)	980 400 030	80-4000-30
SDSF Split Frame 4.0	4in (102mm)	980 400 040	80-4000-40
SDSF Split Frame 5.0**	5in (127mm)	980 400 050	80-4000-50
SDSF Split Frame 6.0**	6in (152m)	980 400 060	80-4000-60

\* Collet only 1in (25.4mm) and below.

\*\* Special sizes on request.



Axial Slide for Socket Weld Removal



Wheel Cutting Module for FME Cutting



Standard Storage Case



Counterbore attachment fits all models

# SDSF Split Frame Slides

## SDSF Tool Slide & Trip Assemblies

ITEM	CODE	PART #
Tool slide and trip assemblies for SDSF 1.0		
Tool slide and trip assemblies for SDSF 1.0 Radial feed parting tool slide	980 410 110	80-4101-10
Radial feed beveling tool slide	980 410 210	80-4102-10
Radial feed tool slide trip assembly For SDSF 1.0 to SDSF 6.0	980 410 300	80-4103-00
Radial feed tool slide kit includes: • 1 parting slide • 1 beveling slide • 1 trip assembly	980 510 110	80-5101-10
Radial feed socket weld removal tool slide Used with the SDSF for removal of socket welds, the radial slide requires less axial clearance. The tooling is advanced to the pipe center line (radially) to remove the weld material. Also available as a complete Radial Socket Weld Removal Kit	980 410 010	80-4100-10
Axial feed socket weld removal tool slide Used with the SDSF for removal of socket welds, the axial slide requires less radial clearance. The tooling is advanced axially along the pipe to remove the weld material. Also available as a complete axial socket weld removal kit	980 410 410	80-4104-10
Axial feed tool slide trip assembly For SDSF 1.0 to SDSF 6.0	980 410 500	80-4105-00
Axial feed tool slide kit includes: • 1 axial slide • 1 trip assembly	980 510 210	80-5102-10
Universal counterbore slide Designed for perfect counterboring of the pipe or tube inside diameter, the universal counterbore fits all Wachs SDSF ring set. Utilizes a simple and effective hand advance to precisely control the counterbore. For SDSF 1.0 to SDSF 6.0	980 410 700	80-4107-00
Tool slide and trip assemblies for SDSF 2.0		
Radial feed parting tool slide	980 410 120	80-4101-20
Radial feed beveling tool slide	980 410 220	80-4102-20
Radial feed tool slide trip assembly For SDSF 1.0 to SDSF 6.0	980 410 300	80-4103-0
Radial feed tool slide kit includes: • 1 parting slide • 1 beveling slide • 1 trip assembly	980 510 120	80-5101-20
Radial feed socket weld removal tool slide	980 410 020	80-4100-20
Axial feed socket weld removal tool slide	980 410 420	80-4104-20
Axial feed tool slide trip assembly For SDSF 1.0 to SDSF 6.0	980 410 500	80-4105-00
Axial feed tool slide kit includes: • 1 axial slide • 1 trip assembly	980 510 220	80-5102-20
Universal counterbore slide For SDSF 1.0 to SDSF 6.0	980 410 700	80-4107-00
Tool slide and trip assemblies for SDSF 3.0 & SDSF 4.0		
Radial feed parting tool slide	980 410 140	80-4101-40
Radial feed beveling tool slide	980 410 240	80-4102-40
Radial feed tool slide trip assembly	980 410 300	80-4103-00
Radial feed tool slide kit includes: • 1 parting slide • 1 beveling slide • 1 trip assembly	980 510 140	80-5101-40
Trip assembly	980 410 440	80-4104-40



Radial Socket Weld Removal Slide



Axial Socket Weld Removal Slide



Counterbore Tool Slide



Radial Feed Tool Slide Kit

# SDSF Split Frame Slides & Tooling

## SDSF Tool Slide & Trip Assemblies

ITEM	CODE	PART #
Axial feed tool slide trip assembly For SDSF 1.0 to SDSF 6.0	980 410 500	80-4105-00
Axial feed tool slide kit includes • 1 axial slide • 1 trip assembly	980 510 240	80-5102-40
Universal counterbore slide For SDSF 1.0 to SDSF 6.0	980 410 700	80-4107-00
Tool slide and trip assemblies for SDSF 5.0 and SDSF 6.0		
Radial feed parting tool slide	980 410 160	80-4101-60
Radial feed beveling tool slide	980 410 260	80-4102-60
Radial feed tool slide trip assembly For SDSF 1.0 to SDSF 6.0	980 410 300	80-4103-00
Radial feed tool slide kit includes • 1 parting slide • 1 beveling slide • 1 trip assembly	980 510 160	80-5101-60
Axial feed socket weld removal tool slide	980 410 460	80-4104-60
Axial feed tool slide trip assembly For SDSF 1.0 to SDSF 6.0	980 410 500	80-4105-00
Axial feed tool slide kit includes • 1 axial slide • 1 trip assembly	980 510 260	80-5102-60
FME (foreign material exclusion) slide	980 410 660	80-4106-60



FME (Foreign Material Exclusion) Slide



Parting tooling standard

## SDSF Tooling

Cutting, bevel, counterbore, radial and axial socket weld removal

ITEM	DIMENSIONS	LENGTH	CODE	PART #
Parting Tooling				
Low clearance	1/8 x 1/2in (3.2 x 12.7 mm)	1.63in (41.4 mm)	980 700 101	80-7001-01
Standard		2.13in (54.1 mm)	980 700 102	80-7001-02
Extended reach		2.63in (66.8 mm)	980 700 103	80-7001-03
Bevel Tooling				
Standard 37.5°	3/8 x 1/2in (9.5 x 12.7 mm)	2.13in (54.1 mm)	952 710 020	52-710-02
Extended reach 37.5°		2.63in (66.8 mm)	952 710 030	52-710-03
Extended reach 30°		2.67in (67.8 mm)	952 705 010	52-705-01
Extended reach 45°			952 705 030	52-705-03
Low clearance 37.5°, outside		1.63in (41.4 mm)	980 700 801	80-7008-01
Standard 37.5°, outside		2.13in (54.1 mm)	980 700 802	80-7008-02
Universal Counterbore Tool				
Counterbore tool taper 4:1 (14°)	-	-	980 700 301	80-7003-01
Socket Weld Removal Tooling, Radial Feed				
Standard, radial	-	-	980 700 601	80-7006-01
Extended reach, radial	-	-	980 700 602	80-7006-02
Low clearance, radial	-	-	980 700 603	80-7006-03
Socket Weld Removal Tooling, Axial Feed				
Standard, axial	3/8 x 3/8in (9.5 x 9.5 mm)	2.0in (50.8 mm)	980 700 702	80-7007-02
Standard, HSS tool bit, axial For single point facing, beveling and flange facing For use with EP 424, LCSF/3, FF, SWR and SDSF machines			952 701 010	52-701-01
Standard, axial. Offset dogleg. With 1in (25.4 mm) extension		1.5in (38.1 mm)	952 701 020	52-701-02
Standard, carbide, axial		1.0in (25.4 mm)	952 702 010	52-702-01
Extended reach, axial		2.5in (63.5 mm)	980 700 703	80-7007-03
Extended reach, axial. Offset dogleg. With 1 1/4in (31.8 mm) extension			952 701 030	52-701-03
FME chipless cutting wheel			980 005 300	80-0053-00



Bevel tooling extended reach 30°



Counterbore tool taper 4:1



FME cutting wheel

# SDSF Split Frame Accessories

## SDSF Aluminum Collets & Collet Accessories

Please specify when ordering customized tools:

Pipe/tube true OD, material (aluminum, delrin, stainless), collet size markings

Collets require collet nut and spanner wrench when purchased with individual SDSF machine.

ITEM	CODE	PART #
Customized aluminum collets for SDSF 1.0-SDSF 3.0	ON REQUEST	ON REQUEST
Customized aluminum collets for SDSF 4.0-SDSF 6.0	ON REQUEST	ON REQUEST
Collet kit for SDSF 1.0 Includes: <ul style="list-style-type: none"> <li>Aluminum collets for pipe OD: 0.5in, 0.75in, 1in (12.7, 19.05, 25.4 mm)</li> <li>1 collet nut</li> <li>1 spanner wrench</li> </ul>	980 520 110	80-5201-10
Collet kit for SDSF 2.0 Includes: <ul style="list-style-type: none"> <li>Aluminum collets for 1.25in, 1.5in, 2in (31.75, 38.1, 50.8 mm) Pipe OD</li> <li>1 collet nut</li> <li>1 spanner wrench</li> </ul>	980 520 120	80-5201-20
Collet kit for SDSF 3.0 Includes: <ul style="list-style-type: none"> <li>Aluminum collets for 2in, 2.5in, 3in (50.8, 63.5, 76.2 mm) Pipe OD</li> <li>1 collet nut</li> <li>1 spanner wrench</li> </ul>	980 520 130	80-5201-30
Collet kit for SDSF 4.0 Includes: <ul style="list-style-type: none"> <li>Aluminum collets for 3in, 3.5in, 4in (76.2, 88.9, 101.6 mm) Pipe OD</li> <li>1 collet nut</li> <li>1 spanner wrench</li> </ul>	980 520 140	80-5201-40
Collet kit for SDSF 5.0 Includes: <ul style="list-style-type: none"> <li>Aluminum collets for pipe OD: 4in, 5in (101.6, 127.0 mm)</li> <li>1 collet nut</li> <li>1 spanner wrench</li> </ul>	980 520 150	80-5201-50
Collet kit for SDSF 6.0 Includes: <ul style="list-style-type: none"> <li>Aluminum collets for pipe OD: 5in, 6in (127.0, 152.4 mm)</li> <li>1 collet nut</li> <li>1 spanner wrench</li> </ul>	980 520 160	80-5201-60
Collet nut for SDSF 1.0	980 000 710	80-0007-10
Collet nut for SDSF 2.0	980 000 720	80-0007-20
Collet nut for SDSF 3.0	980 000 730	80-0007-30
Collet nut for SDSF 4.0	980 000 740	80-0007-40
Collet nut for SDSF 5.0	980 000 750	80-0007-50
Collet nut for SDSF 6.0	980 000 760	80-0007-60
Spanner wrench for SDSF 1.0 to SDSF 2.0	990 800 780	90-800-78
Spanner wrench for SDSF 3.0 to SDSF 4.0	990 800 790	90-800-79
Spanner wrench for SDSF 5.0 to SDSF 6.0	990 800 800	90-800-80



Aluminum Collet



Collet Nut for SDSF



Spanner Wrench for SDSF



# SDSF Split Frame Accessories

## SDSF Motors & Miscellaneous Accessories

ITEM	1.0	2.0	3.0	4.0	5.0	6.0	CODE	PART #
Clamp foot and extension leg set Includes: 4 each clamp foot 80 4001 00 4 each extension legs 0.31in (7.9 mm) 4 each extension legs 0.56in (14.2 mm)		x	x	x	x	x	980 500 100	80-5001-00
Universal right angle air drive motor	x	x	x	x			980 400 400	80-4004-00
Electric motor For SDSF 120V 1500W	x	x	x	x	x	x	900 002 015	80-4005-01
Electric motor For SDSF 230V 1500W	x	x	x	x	x	x	900 002 002	80-4006-01
Front drive pinion housing assembly	x						980 400 310	80-4003-10
		x					980 400 320	80-4003-20
			x				980 400 330	80-4003-30
				x			980 400 340	80-4003-40
					x		980 400 350	80-4003-50
						x	980 400 360	80-4003-60
Universal spare fastener kit.*	x	x	x	x	x	x	980 550 000	80-5500-00
Axial feed tool slide trip assembly	x	x	x	x	x	x	980 400 330	80-4003-30
Universal manual	x	x	x	x	x	x	980 626 010	80-MAN-01
Bevel slide cover assembly. For use with outside bevel tooling	x	x	x	x	x	x	980 410 800	80-4108-00

\* Kit BOM's subject to change based on current production configuration

## Cutting Lubrication

Water soluble, fully synthetic cooling fluid that extends the life of tool bits. This biodegradable, non-hazardous, well corrosion resistant mixture was developed conforming to drinking water requirements according to DVGW work sheet W521 (thread cutting compounds for drinking water installations)

DESCRIPTION	VERSION	WEIGHT	CODE
Cutting lubrication KSS-TOP	Pump sprayer with 500 ml	1.39 lb (630 g)	790 060 226
Cutting lubrication KSS-TOP refill canister	Canister with 10 l	24.25 lb (11 kg)	790 060 227



Clamp Foot & Extension Leg Set



Universal Right Angle Pneumatic Drive Motor



Electric Motor for SDSF



Cutting lubrication KSS-TOP