



E.H. WACHS®
 Superior Equipment. Complete Support.™

Optimized for low-clearance environments.



Axial slide for socket weld removal.



Wheel Cutting Module for FME cutting.



Counterbore attachment fits all models. Mounts securely to tool slide.



Drive pinion housing.

18 Pipe Cutting and Beveling Machines SDSF

Mobile and splittable Pipe Cutting and Beveling Machines (low range)

- 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 11.1 mm (0.438") 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
- All pipes DN 15 - 150 (1" - 6") can mount, depending on sizes, using collets or clamp feet



SDSF Split Frame



SDSF Small Diameter Split Frame

E.H. WACHS® SDSF Small Diameter Split Frames are the smallest and most compact member of the WACHS split frame family and are designed for cutting, beveling and counterboring pipe and tubing from OD DN 15 - 150 (0.5" - 6"). Like all WACHS split frame, clamshell style machines the SDSF is designed to "split" in half to fit over inline pipe, or can be slipped closed over open ended pipe. Six models are available in 25.4 mm (1") increments, with additional sizes available by special order.

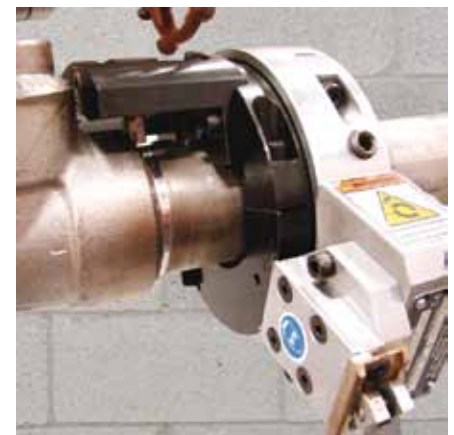
Small size, big capabilities

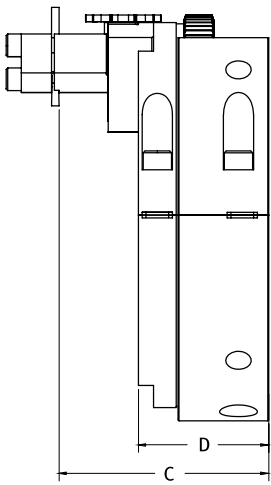
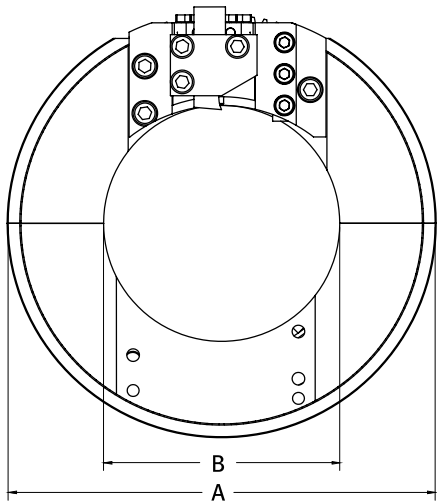
The SDSF is ideal anywhere pipe and tube are arrayed in tight places and finds many uses in power generation, oil and gas and the shipbuilding industries. The SDSF operates on air or electric power using standard WACHS motors and adaptors and is part of a complete system that includes a broad range of 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.

The SDSF, like all WACHS split frames, 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 are all new designs incorporating 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 disciplined and controlled power generation field.

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. Please contact Orbitalum Tools (wachs@orbitalum.com).					
Dimension A	[mm]	127	144.5	174.5	198.5	252.4
Machine OD	[inch]	5.000	5.688	6.871	7.812	8.938
Dimension B	[mm]	39.7	66.7	95.25	120.7	149.3
Machine ID	[inch]	1.562	2.626	3.750	4.750	6.875
Dimension C	[mm]	88.1	88.1	88.1	88.1	88.1
Parting line	[inch]	3.468	3.468	3.468	3.468	3.468
Dimension D	[mm]	64.3	54.7	54.7	54.7	54.7
Machine thickness	[inch]	2.530	2.155	2.155	2.155	2.155
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, 2" 40 sf/m 4"					
Drive options	Pneumatic or electric					
Air requirements	[m ³ /min]	1 at 6.2 bar				
	[ft ³ /min]	35 at 90 psi				
Electrical requirements	230/120 Volt					
Feed method	Star wheel					
Feed rate	Fixed at 0.079 mm (0.0031") per trip					
Construction	Alloy steel					
Tool slide	Radial or axial feed, cut and bevel, counterbore, FME module					
Tool stroke	11.9 mm (0.468")					
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					
Standard equipment	Self squaring mounting system, pinion housing, heavy duty watertight carrying case, operating hand tools, operating manuals					
Optional equipment	Electric drive, 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 or legs, drive, collet nut and spanner wrench for complete machine. See individual ring size accessory listings on the following pages.

SDSF Small Diameter Split Frame kits

For socket weld removal.

Standard equipment	<ul style="list-style-type: none"> • Frame assemblies DN 25 and DN 50 (1" and 2") • Axial feed socket weld removal tool slides DN 25 and DN 50 (1" and 2") • Aluminum collets for pipes with Ø: 12.7 / 19.05 / 25.4 / 31.75 / 38.1 / 50.8 mm (0.5" / 0.75" / 1" / 1.25" / 1.5" / 2") • Clamp foot and extension leg kit for 50.8 mm (2") frame • 1 Air drive • Spare fastener kit • Storage case • Operating hand tools • Manual
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* Machine 25.4 (1") is collet only.

Article	Version	Pipe OD		Code	WACHS Ref.-no.
		[mm]	[inch]		
SDSF Kit "Axial Feed"	Pneumatic	12.7 - 50.8	0.5 - 2	980 000 029	80-0000-AX
SDSF Kit "Radial Feed"	Pneumatic	12.7 - 50.8	0.5 - 2	980 000 072	80-0000-RA

Split Frames

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

Standard equipment:

- Individual Split Frame*
- Pinion housing
- Storage case
- Spare fastener kit
- Hand tools
- Manual

Article	Pipe OD		Code	WACHS Ref.-no.
	[DN]	[inch]		
SDSF Split Frame 1.0*	25	1	980 400 010	80-4000-10
SDSF Split Frame 1.5* / **		1.5	980 400 015	80-4000-15
SDSF Split Frame 2.0	50	2	980 400 020	80-4000-20
SDSF Split Frame 2.5**		2.5	980 400 025	80-4000-25
SDSF Split Frame 3.0	80	3	980 400 030	80-4000-30
SDSF Split Frame 3.5**		3.5	980 400 035	80-4000-35
SDSF Split Frame 4.0	100	4	980 400 040	80-4000-40
SDSF Split Frame 5.0**	125	5	980 400 050	80-4000-50
SDSF Split Frame 6.0**	150	6	980 400 060	80-4000-60

* Machines 25.4 (1") and 38.1 (1.5") is collet only.

** Special sizes on request.



Axial slide for socket weld removal



Wheel cutting module for FME cutting



Counterbore attachment fits all models.
Mounts securely to tool slide.



Aluminum collet



Collet nut for SDSF



Spanner wrench for SDSF



Radial feed tool slide kit

Aluminum collets and collet accessories

Please specify when ordering customized tools:

Pipe/tube true OD, material (aluminum, delrin, stainless), collet size markings (mm or inch).

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

Article	Code	WACHS Ref.-no.		
Customized aluminum collets for SDSF 1.0 to SDSF 3.5	on request	-		
Customized aluminum collets for SDSF 4.0 to SDSF 6.0	on request	-		
Collet kit for SDSF 1.0 Includes: • aluminum collets for pipe OD: 12.7, 19.05, 25.4 mm (0.5", 0.75", 1") • 1 collet nut • 1 spanner wrench	980 520 110	80-5201-10		
Collet kit for SDSF 1.5 Includes: • aluminum collets for pipe OD: 25.4, 31.75, 38.1 mm (1", 1.25", 1.5") • 1 collet nut • 1 spanner wrench	980 520 115	80-5201-15		
Collet kit for SDSF 2.0 Includes: • aluminum collets for pipe OD: 31.75, 38.1, 50.8 mm (1.25", 1.5", 2") • 1 collet nut • 1 spanner wrench	980 520 120	80-5201-20		
Collet kit for SDSF 2.5 Includes: • aluminum collets for pipe OD: 38.1, 50.8, 63.5 mm (1.5", 2", 2.5") • 1 collet nut • 1 spanner wrench	980 520 125	80-5201-25		
Collet kit for SDSF 3.0 Includes: • aluminum collets for pipe OD: 50.8, 63.5, 76.2 mm (2", 2.5", 3") • 1 collet nut • 1 spanner wrench	980 520 130	80-5201-30		
Collet kit for SDSF 3.5 Includes: • aluminum collets for pipe OD: 63.5, 76.2, 88.9 mm (2.5", 3", 3.5") • 1 collet nut • 1 spanner wrench	980 520 135	80-5201-35		
Collet kit for SDSF 4.0 Includes: • aluminum collets for pipe OD: 76.2, 88.9, 101.6 mm (3", 3.5", 4") • 1 collet nut • 1 spanner wrench	980 520 140	80-5201-40		
Collet kit for SDSF 5.0 Includes: • aluminum collets for pipe OD: 101.6, 127.0 mm (4", 5") • 1 collet nut • 1 spanner wrench	980 520 150	80-5201-50		
Collet kit for SDSF 6.0 Includes: • aluminum collets for pipe OD: 127.0, 152.4 mm (5", 6") • 1 collet nut • 1 spanner wrench	980 520 160	80-5201-60		
Collet nut for SDSF 1.0	980 000 710	80-0007-10		
Collet nut for SDSF 1.5	980 000 715	80-0007-15		
Collet nut for SDSF 2.0	980 000 720	80-0007-20		
Collet nut for SDSF 2.5	980 000 725	80-0007-25		
Collet nut for SDSF 3.0	980 000 730	80-0007-30		
Collet nut for SDSF 3.5	980 000 735	80-0007-35		
Collet nut for SDSF 4.0	980 000 740	80-0007-40		
Collet nut for SDSF 5.0	980 000 750	80-0007-50		

Article	Code	WACHS Ref.-no.		
Collet nut for SDSF 6.0	980 000 760	80-0007-60		
Spanner wrench for SDSF 1.0 to SDSF 2.5	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		



Axial socket weld removal 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.

Tool slide and trip assemblies

Article	Code	WACHS Ref.-no.		
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.	980 410 010	80-4100-10		
Axial feed socket weld removal tool slide.	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		
FME (Foreign Material Exclusion) slide.	980 410 610	80-4106-10		
Universal counterbore slide. For SDSF 1.0 to SDSF 6.0.	980 410 700	80-4107-00		
Tool slide and trip assemblies for SDSF 1.5, SDSF 2.0 and SDSF 2.5				
Radial feed parting tool slide (Standard).	980 410 120	80-4101-20		
Radial feed beveling tool slide (Standard).	980 410 220	80-4102-20		
Radial feed tool slide trip assembly (Standard). For SDSF 1.0 to SDSF 6.0.	980 410 300	80-4103-00		
Radial feed tool slide kit (Standard). Includes: • 1 parting slide • 1 beveling slide • 1 trip assembly	980 510 120	80-5101-20		
Radial feed socket weld removal tool slide (Standard).	980 410 020	80-4100-20		
Axial feed socket weld removal tool slide (Standard).	980 410 420	80-4104-20		
Axial feed tool slide trip assembly (Standard). 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		
FME (foreign material exclusion) slide (Standard).	980 410 620	80-4106-20		
Universal counterbore slide (Standard). For SDSF 1.0 to SDSF 6.0.	980 410 700	80-4107-00		
Tool slide and trip assemblies for SDSF 3.0, SDSF 3.5 and SDSF 4.0				
Radial feed parting tool slide (Standard).	980 410 140	80-4101-40		
Radial feed beveling tool slide (Standard).	980 410 240	80-4102-40		
Radial feed tool slide trip assembly (Standard).	980 410 300	80-4103-00		
Radial feed tool slide kit (Standard). Includes: • 1 parting slide • 1 beveling slide • 1 trip assembly	980 510 140	80-5101-40		
Trip assembly (Standard).	980 410 440	80-4104-40		
Axial feed tool slide trip assembly (Standard). For SDSF 1.0 to SDSF 6.0.	980 410 500	80-4105-00		
Axial feed tool slide kit (Standard). Includes: • 1 axial slide • 1 trip assembly	980 510 240	80-5102-40		
FME (foreign material exclusion) slide (Standard).	980 410 640	80-4106-40		



Radial Socket Weld Removal 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.



FME tool slide

Foreign material exclusion, utilizes chipless cutting to prevent introduction of chip debris. A high alloy cutting wheel performs the final cutting of the pipe or tube, and does not generate any chip debris which may contaminate the workpiece (preparation with parting blade recommended).



Universal counterbore tool 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.

Article	Code	WACHS Ref.-no.		
Universal counterbore slide (Standard). 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 (Special).	980 410 160	80-4101-60		
Radial feed beveling tool slide (Special).	980 410 260	80-4102-60		
Radial feed tool slide trip assembly (Standard). For SDSF 1.0 to SDSF 6.0.	980 410 300	80-4103-00		
Radial feed tool slide (Special). Includes: • 1 parting slide • 1 beveling slide • 1 trip assembly	980 510 160	80-5101-60		
Axial feed socket weld removal tool slide (Special).	980 410 460	80-4104-60		
Axial feed tool slide trip assembly (Standard). For SDSF 1.0 to SDSF 6.0.	980 410 500	80-4105-00		
Axial feed tool slide kit (Special). Includes: • 1 axial slide • 1 trip assembly	980 510 260	80-5102-60		
FME (foreign material exclusion) slide (Special).	980 410 660	80-4106-60		
FME cutting wheel.	980 005 300	80-0053-00		

Motors and miscellaneous accessories

Article	To utilize with SDSF								Code	WACHS Ref.-no.			
	1.0	1.5	2.0	2.5	3.0	3.5	4.0	5.0					6.0
Universal right angle air drive motor.	x		x		x		x			980 400 400	80-4004-00		
Electric motor. For SDSF 120 V - 1500 W	x	x	x	x	x	x	x	x	x	900 002 015	-		
Electric motor. For SDSF 230 V - 1500 W	x	x	x	x	x	x	x	x	x	900 002 002	-		
Bench mount assembly.	x	x	x	x						980 420 120	80-4201-20		
Bench mount assembly.					x	x	x	x	x	980 420 160	80-4201-60		
Front drive pinion housing assembly.	x									980 400 310	80-4003-10		
Front drive pinion housing assembly.		x								980 400 315	80-4003-15		
Front drive pinion housing assembly.			x							980 400 320	80-4003-20		
Front drive pinion housing assembly.				x						980 400 325	80-4003-25		
Front drive pinion housing assembly.					x					980 400 330	80-4003-30		
Front drive pinion housing assembly.						x				980 400 335	80-4003-35		
Front drive pinion housing assembly.							x			980 400 340	80-4003-40		
Front drive pinion housing assembly.								x		980 400 350	80-4003-50		
Front drive pinion housing assembly.									x	980 400 360	80-4003-60		
Universal spare fastener kit.*	x	x	x	x	x	x	x	x	x	980 550 000	80-5500-00		
Clamp foot and extension leg set. Includes: • 4 each clamp foot (980 400 100) • 4 each extension legs 7.9 mm (0.31") (980 007 800) • 4 each extension legs 14.2 mm (0.56") (980 007 801)			x	x	x	x	x	x	x	980 500 100	80-5001-00		
Axial feed tool slide trip assembly.	x	x	x	x	x	x	x	x	x	980 400 330	80-4003-30		
Universal manual.	x	x	x	x	x	x	x	x	x	980 626 010	80-MAN-01		

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



Electric motor for SDSF



Universal right angle air drive motor



Clamp foot and extension leg set

Universal tooling

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

Article	Dimensions		Length		Code	WACHS Ref.-no.		
	[mm]	[inch]	[mm]	[inch]				
Parting Tooling								
Low clearance	3.2 x 12.7	1/8 x 1/2	41.4	1.63	980 700 101	80-7001-01		
Standard	3.2 x 12.7	1/8 x 1/2	54.1	2.13	980 700 102	80-7001-02		
Extended reach	3.2 x 12.7	1/8 x 1/2	66.8	2.63	980 700 103	80-7001-03		
Bevel Tooling								
Standard 37.5°	9.5 x 12.7	3/8 x 1/2	54.1	2.13	952 710 020	52-710-02		
Extended reach 37.5°	9.5 x 12.7	3/8 x 1/2	66.8	2.63	952 710 030	52-710-03		
Extended reach 30°	9.5 x 12.7	3/8 x 1/2	67.8	2.67	952 705 010	52-705-01		
Extended reach 45°	9.5 x 12.7	3/8 x 1/2	67.8	2.67	952 705 030	52-705-03		
Low clearance 37.5°, outside	9.5 x 25.4	3/8 x 1	41.4	1.63	980 700 801	80-7008-01		
Standard 37.5°, outside	9.5 x 25.4	3/8 x 1	54.1	2.13	980 700 802	80-7008-02		
Extended reach 37.5°, outside	9.5 x 25.4	3/8 x 1	66.8	2.63	980 700 803	80-7008-03		
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	9.5 x 9.5	3/8 x 3/8	50.8	2.0	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.	9.5 x 9.5	3/8 x 3/8			952 701 010	52-701-01		
Standard, axial. Offset dogleg. With 25.4 mm (1") extension.	9.5 x 9.5	3/8 x 3/8	38.1	1.5	952 701 020	52-701-02		
Standard, carbide, axial.	9.5 x 9.5	3/8 x 3/8	25.4	1.0	952 702 010	52-702-01		
Extended reach, axial	9.5 x 9.5	3/8 x 3/8	63.5	2.5	980 700 703	80-7007-03		
Extended reach, axial. Offset dogleg. With 31.8 mm (1 1/4") extension.	9.5 x 9.5	3/8 x 3/8			952 701 030	52-701-03		
Extended reach, axial. Carbide offset dogleg. With 25.4 mm (1") extension.	9.5 x 9.5	3/8 x 3/8	38.1	1.5	952 702 020	52-702-02		
FME cutting wheel. For chipless cutting.					980 005 300	80-0053-00		



Parting tooling standard



Bevel tooling extended reach 30°



Counterbore tool taper 4:1



FME cutting wheel

Recommended accessories for SDSF 1.0 to SDSF 6.0

Article	Code	WACHS Ref.-no.		
ATM house.	980 420 200	80-4202-00		
Wrench 11.1 mm (7/16") hex through torque.	990 800 840	90-800-84		
Bevel slide cover assembly. For use with outside bevel tooling.	980 410 800	80-4108-00		

Cutting lubrication

Cutting lubrication "KSS-TOP", see page 32.