STAUFF Form EVO
Tube Forming Machine
Type SFO-F-A-A

Product Description

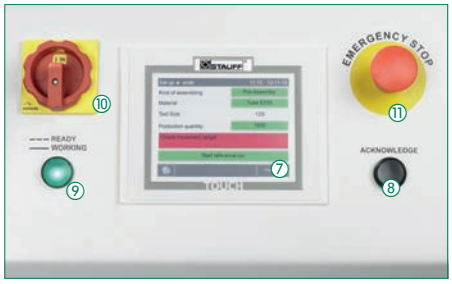
The type SFO-F-A-A tube forming machine facilitates the economical and most reliable production of tube ends made of steel, stainless steel and other materials with a contour typical for the STAUFF Form EVO tube forming system.

The machine is designed as a robust table-top device for continuous operation in the workshop. It is used in connection with FI-FST tube shapers and FI-FB clamping jaws. Tube shapers with FI-ID internal tube supports are used with selected tube dimensions, which prevent the tube from being constricted in the shaping area.

Tube shapers, clamping jaws and internal tube supports have been specifically designed for the mechanical forming process and can be quickly and simply replaced without the need for any tools, if required. The resulting short tool change and set-up times contribute to the high efficiency of the system as well as ensuring low cycle times.

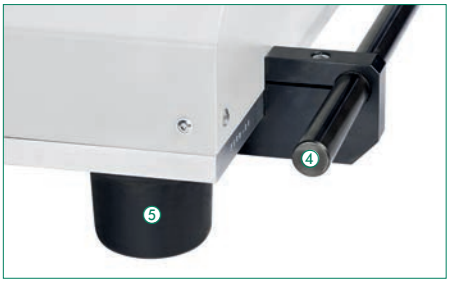
All the tools needed for the forming process are clearly labelled with the tube dimensions so that assembly errors caused by incorrect assignment can be largely ruled out.

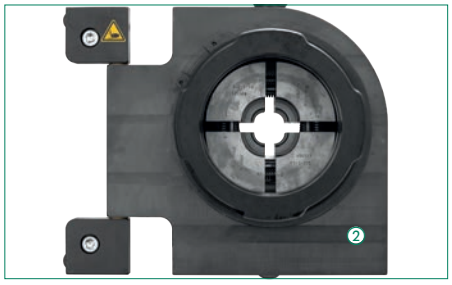




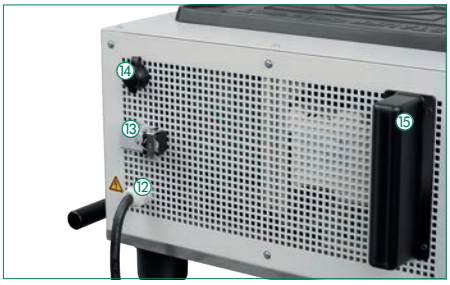
Operating elements of the tube forming machine


Noise-reducing tool tray with durable rubber mat


Lateral handle bars and rubber machine feet with suitable clearance height


Open clamping head with clamping jaws inserted


Inserting the tube shaper into the tool holder – with no tools required


Electrical connections

Optional Cloud connection allows preventive maintenance via remote access and facilitates the documentation of assembly processes
Type SFO-F-IOT



Tube forming machines type SFO-F-A-A can be equipped at the factory with a built-in module for direct connection to a cloud operated by STAUFF. This solution is realised with an integrated SIM card which can be used in all industrial regions of the world.

This enables software updates, for example, without having to connect the machine to a local network on site. Parameter sets, which have been determined by STAUFF for non-standard tube materials can also be transferred quickly and directly to the machine in this way.

Customers are given access to the cloud via a protected online portal, where they can get detailed information on the assembly processes performed, among other things.

The required data security is guaranteed by encryption in both directions.

STAUFF Form EVO
Tube Forming Machine
Type SFO-F-A-A

Characteristics

Performance

- Constant high process safety, reliability and reproducibility by the position-control of the machine, which performs the shaping process following a manual start and monitors it by means of stored parameters
- Maximum efficiency thanks to short cycle times – ideal for series production
- Quick and simple replacement of tube shapers (with bayonet lock) and clamping jaws when changing the tube dimensions – with no tools required
- Potential risk of confusion and assembly errors caused by incorrect assignment can virtually be ruled out by the clear labelling of all assembly tools
- Surface-friendly clamping of the tube during the forming process
- Counters for lot/batch sizes and total quantities (separated by tool size)
- Predefined menu languages: English, German, French and Italian
- High degree of user comfort with clear information displayed on the operating panel

Design

① Robust and ergonomically designed machine housing
② Easily accessible clamping head for simple positioning of the clamping jaws and optimised assembly area with approx. 110 mm / 4.33 in distance from the tube axis to the interfering edge of the machine housing, which allows processing of tubes with low bending radii or complex geometries
③ Noise-reducing tool tray with durable rubber mat
④ Lateral handle bars as attachment points for transport (e.g. with lifting belts)
⑤ Secure positioning thanks to flexible rubber machine feet
⑥ Type plate, with technical data, serial number, year of manufacture etc.

Operating Elements

⑦ Operating panel for display and selection of all relevant settings and forming parameters
⑧ Button for definite confirmation of entries made on the operating panel
⑨ Status light to indicate readiness for operation and running assembly processes

Safety Devices

⑩ Main power switch (can be secured against unauthorised actuation when required)
⑪ Separate emergency stop button to immediately stop all machine movements

Connections (at the back of the machine)

⑫ Electrical connection according to IEC 60309 CEE 16A (cable length: 4 m / 13.12 ft)
⑬ Connection for External Foot Control Switch Type SFO/PRC-POC-FS
⑭ Ethernet connection (RJ45) for maintenance and data input by the manufacturer
⑮ Aerial IoT Gateway for preventive maintenance via remote access and facilitates the documentation of assembly processes

Tube Forming Tools

⑯ Clamping Jaws FI-FB with clear identification of the tube dimension
⑰ Version of a Tube Shaper FI-FST with Internal Tube Support FI-ID
⑱ Tube Shaper FI-FST with clear identification of the tube dimensions

Technical Data

Area of Application

- Function: Cold forming of seamless cold drawn precision steel tubes acc. to to EN 10305-1 (materials E235, E355) and stainless steel tubes (material 1.4571 / AISI 316 Ti)

Parameters for alternative materials can be added by the manufacturer, if required. Please contact STAUFF for details.

- Operating principle: Tube forming with combined pressure/position-control
- Series and dimensions: Light Series (L): 6 x 1,5 mm to 42 x 4 mm
  Heavy Series (S): 6 x 1,5 mm to 38 x 6 mm

Dimensions / Weight

- Dimensions (W x D x H): 850 mm x 890 mm x 330 mm
  33.46 in x 35.04 in x 12.99 in
  with lateral handle bars (detachable)
- Distance from the tube axis to the interfering edge of the machine housing: 110 mm / 4.33 in
- Clearance height: 65 mm / 2.56 in (height of the machine feet) enables simple and safe transport using a forklift or pallet jack
- Weight: 210 kg / 463 lbs (including operating fluid, excluding forming tools)

Materials

- Machine frame: Aluminium
- Machine housing: Steel, painted
- Tool tray: NBR (Perbunan®)
- Machine feet: Natural rubber
- Form rings: Steel, zinc/nickel-plated
- Form rings (seal): FKM (Viton®)

Motor Configuration

- Power supply: 400 V AC @ 50 Hz - 3 phases
  460 V AC @ 60 Hz - 3 phases
- Current consumption: 2,55 A
- Connected load: 1,0 kW
- Electrical connection: Phase reversing plug according to IEC 60309 CEE 16A
- Cable length: 4 m / 13.12 ft

Alternative motor configurations and plug types are available on request. Please contact STAUFF for details.

Hydraulic System

- Operating fluid: Hydraulic oil Shell Tellus S2 MA 46 or equivalent (filled and ready for operation when delivered)
- Fluid volume: 6,1 litres / 1.61 US Gallon
- Max working pressure: 700 bar / 10153 PSI

Operating Conditions

- Storage temperature: -10°C … +70°C / +14°F … +158°F
- Ambient temperature: +15°C … +35°C / +59°F … +95°F
- Ambient conditions: Dry, no condensing humidity, operation in horizontal position only
- Noise emission: less than 69 dB(A) as per EN ISO 11202 at full-load operation with maximum tube dimensions

STAUFF Maintenance Contracts
Please contact STAUFF for a maintenance contract, that provides optimum service for your STAUFF Tube Forming Machine.

STAUFF Machine Rental
Please contact STAUFF for a rental machine and further details of what this service can offer.

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STAUFF Form EVO Tube Shapers ▪ Type FI-FST
STAUFF Form EVO Internal Tube Supports ▪ Type FI-ID



Tube OD		Tube Wall Thickness		Weight per piece		Ordering Codes	
(mm)	(in)	(mm)	(in)	(kg) ca.	(lbs) ca.	Tube Shapers	Internal Tube Supports
6	.24	1,5	.06	1,95	4.29	**FI-FST-06L/S-F2-S-A**	
8	.31	1,5	.06	1,97	4.33	**FI-FST-08L/S-F2-S-A**	
		2,0	.08				
10	.39	1,5	.06	1,98	4.36	**FI-FST-10L/S-F2-S-A**	
		2,0	.08				
		2,5	.10				
		3,0	.12				
12	.47	1,5	.06	1,99	4.38	**FI-FST-12L/S-1.5-F2-S-A**	**FI-ID-12x1.5-HR/2**
		2,0	.08			**FI-FST-12L/S-2/2.5/3-F2-S-A**	
		2,5	.10				
		3,0	.12				
15	.59	1,5	.06	2,0	4.40	**FI-FST-15L-F2-S-A**	**FI-ID-15x1.5-HR/2**
		2,0	.08				**FI-ID-15x2.0-HR/2**
		2,5	.10				**FI-ID-15x2.5-HR/2**
16	.63	2,0	.08	2,04	4.49	**FI-FST-16S-2/2.5-F2-S-A**	**FI-ID-16x2.0-HR/2**
		2,5	.10				**FI-ID-16x2.5-HR/2**
		3,0	.12			**FI-FST-16S-3/4-F2-S-A**	
		4,0	.16				
18	.71	1,5	.06	1,97	4.33	**FI-FST-18L-2/2.5-F2-S-A**	**FI-ID-18x1.5-HR/2**
		2,0	.08				**FI-ID-18x2.0-HR/2**
		2,5	.10				**FI-ID-18x2.5-HR/2**
		3,0	.12			**FI-FST-18L-3-F2-S-A**	
20	.79	2,0	.08	1,98	4.36	**FI-FST-20S-2/2.5-F2-S-A**	**FI-ID-20x2.0-HR/2**
		2,5	.10				**FI-ID-20x2.5-HR/2**
		3,0	.12			**FI-FST-20S-3/3.5/4-F2-S-A**	
		4,0	.16				
22	.87	2,0	.08	1,95	4.29	**FI-FST-22L-2/2.5-F2-S-A**	**FI-ID-22x2.0-HR/2**
		2,5	.10				**FI-ID-22x2.5-HR/2**
		3,0	.12			**FI-FST-22L-3/3.5-F2-S-A**	
		3,5	.14				
25	.98	2,0	.08	1,96	4.31	**FI-FST-25S-2/2.5-F2-S-A**	**FI-ID-25x2.0-HR/2**
		2,5	.10				**FI-ID-25x2.5-HR/2**
		3,0	.12			**FI-FST-25S-3/3.5/4/5-F2-S-A**	
		3,5	.14				
		4,0	.16				
		5,0	.20				
28	1.10	2,0	.08	1,96	4.31	**FI-FST-28L-2/2.5/3-F2-S-A**	**FI-ID-28x2.0-HR/2**
		2,5	.10				**FI-ID-28x2.5-HR/2**
		3,0	.12				**FI-ID-28x3.0-HR/2**
		3,5	.14			**FI-FST-28L-3.5/4-F2-S-A**	
		4,0	.16				
30	1.18	2,5	.10	1,95	4.29	**FI-FST-30S-2.5/3-F2-S-A**	**FI-ID-30x2.5-HR/2**
		3,0	.12				**FI-ID-30x3.0-HR/2**
		4,0	.16			**FI-FST-30S-4/5/6-F2-S-A**	
		5,0	.20				
		6,0	.24				
35	1.38	2,5	.10	2,0	4.40	**FI-FST-35L-2.5/3-F2-S-A**	**FI-ID-35x2.5-HR/2**
		3,0	.12				**FI-ID-35x3.0-HR/2**
		4,0	.16			**FI-FST-35L-4/5-F2-S-A**	
		5,0	.20				
38	1.50	3,0	.12	1,82	4.00	**FI-FST-38S-3/4-F2-S-A**	**FI-ID-38x3.0-HR/2**
		4,0	.16				**FI-ID-38x4.0-HR/2**
		5,0	.20			**FI-FST-38S-5/6-F2-S-A**	
		6,0	.24				
42	1.65	3,0	.12	1,94	4.27	**FI-FST-42L-F2-S-A**	**FI-ID-42x3.0-HR/2**
		3,5	.14				**FI-ID-42x3.5-HR/2**
		4,0	.16				**FI-ID-42x4.0-HR/2**

Materials / surface finishings: **HR** Steel, uncoated, hardened

Please note:
The selection chart is only applicable in conjunction with seamless cold drawn precision steel tubes according to EN 10305-1 (materials E235, E355) and stainless steel tubes (material 1.4571 / AISI 316 Ti).
Please consult STAUFF for information regarding the processing of tubes made from stainless steel and other materials.

STAUFF Form EVO Clamping Jaws ▪ Type FI-FB



Tube OD (mm/in)	Series	Weight per piece (kg/lbs) ca.	Ordering Codes
6	L / S	2,37	FI-FB-06L/S-F2-S-A
.24		5.21	
8	L / S	2,36	FI-FB-08L/S-F2-S-A
.31		5.19	
10	L / S	2,32	FI-FB-10L/S-F2-S-A
.39		5.10	
12	L / S	2,30	FI-FB-12L/S-F2-S-A
.47		5.06	
15	L	2,37	FI-FB-15L-F2-S-A
.59		5.21	
16	S	2,31	FI-FB-16S-F2-S-A
.63		5.08	
18	L	2,28	FI-FB-18L-F2-S-A
.71		5.02	
20	S	2,24	FI-FB-20S-F2-S-A
.79		4.93	
22	L	2,32	FI-FB-22L-F2-S-A
.87		5.10	
25	S	2,17	FI-FB-25S-F2-S-A
.98		4.77	
28	L	2,32	FI-FB-28L-F2-S-A
1.10		5.10	
30	S	2,05	FI-FB-30S-F2-S-A
1.18		4.51	
35	L	1,92	FI-FB-35L-F2-S-A
1.38		4.22	
38	S	1,92	FI-FB-38S-F2-S-A
1.50		4.22	
42	L	1,77	FI-FB-42L-F2-S-A
1.65		3.89	

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Overview tube dimensions
Parameter and Tools STAUFF Form EVO

Carbon Steel

Size	Wallthickness								
	1	1,5	2	2,5	3	3,5	4	5	6
	E235/ E355	E235/ E355	E235/ E355	E235/ E355	E235/ E355	E235/ E355	E235/ E355	E235/ E355	E235/ E355
6	-		-	-	·	·	·	·	·
8	-				·	·	·	·	·
10	-					·	·	·	·
12	-	▪				·	·	·	·
15	-	▪	▪	▪	·	·	·	·	·
16	-	-	▪	▪		·		·	·
18	-	▪	▪	▪		·	·	·	·
20	-	-	▪	▪				·	·
22	-	-	▪	▪			·	·	·
25	-	-	▪	▪					·
28	-	-	-	▪	▪			·	·
30	-	-	-	▪	▪	·			
35	-	-	-	▪	▪	·			·
38	-	-	-	-	▪	·	▪		
42	-	-	-	-	▪	▪	▪	·	·

Parameter set and tools available. To use without tube supports.

Stainless Steel

Wallthickness									
1	1,5	2	2,5	3	3,5	4	5	6
316ti	316ti	316ti	316ti	316ti	316ti	316ti	316ti	316ti
-			·	·	-	-	-	-
-			·	·	-	-	-	-
-			·	·	-	-	-	-
-					-	-	-	-
-	▪	▪	·	·	-	-	-	-
-	-	▪	▪		-	-	-	-
-	-	▪	▪		-	-	-	-
-	-	▪	▪		-	-	-	-
-	-	▪	▪		-	-	-	-
-	-	▪	▪		-			-
-	-	▪	▪	▪	-	-	-	-
-	-	-	▪	▪	-	-		-
-	-	-	▪	▪	-	-		-
-	-	-	-	▪	-	▪		-
-	-	-	-	▪	-	-	-	-

▪ Parameter set and tools available. To use with internal tube supports.