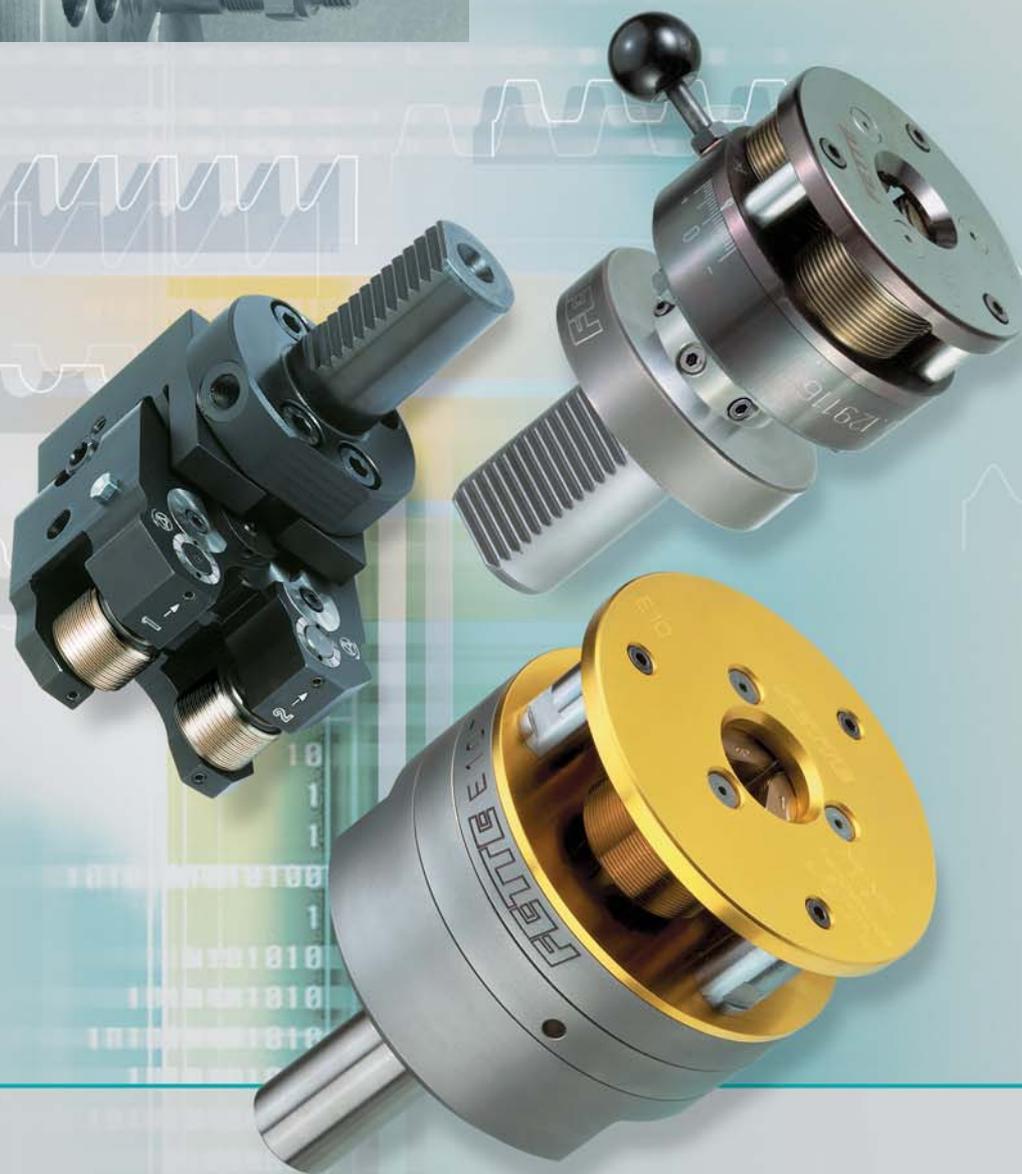


FETTE

Rolling Systems

The first address
for chipless forming



Leitz Metalworking Technology Group
BELIN • BILZ • BOEHLERIT •
FETTE • KIENINGER • ONSRUD



Fette rolling system: The biggest range in technical perfection

Do not be satisfied with less!

Fette rolling systems belong to the best that you can find on the market. Ever since 1952 Fette has pushed technological progress forwards and continuously developed its leading position.

Fette rolling systems are in the frontline when it comes to application engineering, and have proven themselves, thousands of times over, in all parts of the world.

No other manufacturer offers you such a comprehensive range: there is hardly any job with which we cannot help you.

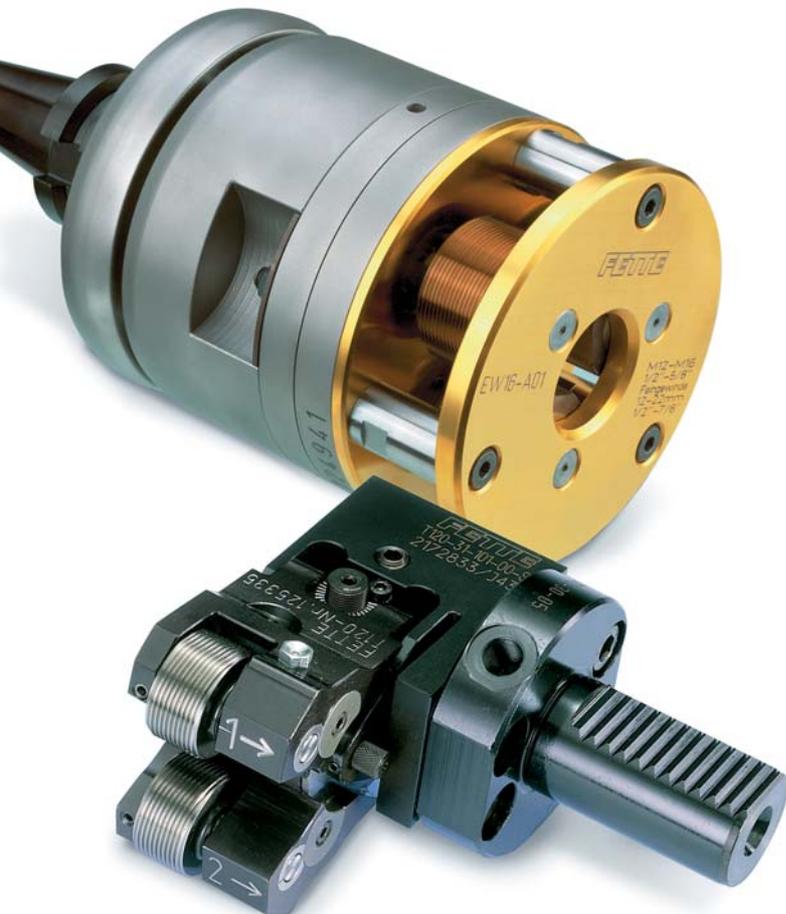
Every one of these products incorporates the special advantages of the Fette rolling systems:

High performance with...

- economic effectiveness
- machining times
- tool service life
- thread strength
- surface quality
- precision
- machine utilization

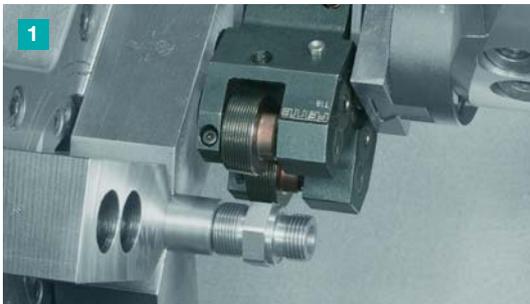
... and as a further advantage:

- no chips are created



Fette rolling systems

Rolling heads at work



When you want to fabricate threads within seconds!

Fette thread rolling heads can be used in a wide range of positions on almost any cutting machine. According to construction, they can be mounted on the saddle slide, cross slide, turret or spindle head of lathes, machining centers and rolling machines. The use of Fette rolling heads also offers crucial benefits on NC and CNC machines.

By saving expensive machine time, the thread is fabricated within seconds in a single pass, whereas CNC-controlled cutting or thread chasing, on the other hand, usually requires several passes.

For further information, please ask for the large Fette Rolling Head Catalog, which will give you a comprehensive overview of Fette's rolling systems.

1. Fette tangential rolling head on a CNC lathe

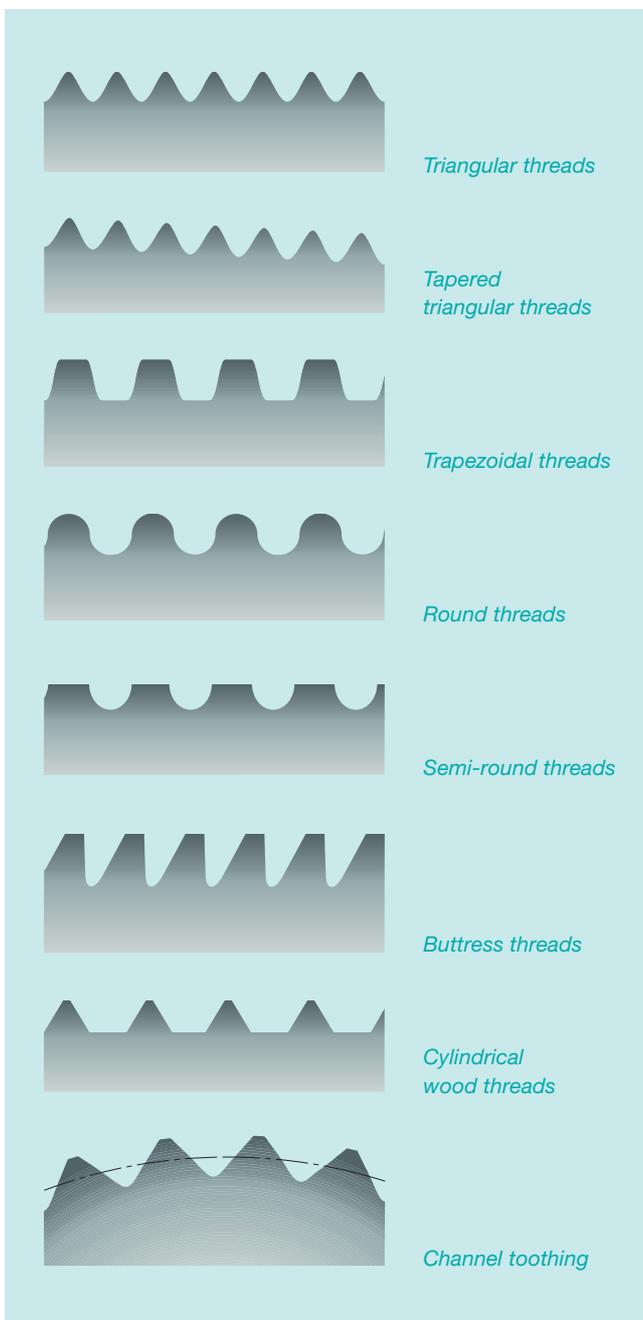
2. Turret of a CNC lathe, fitted entirely with all types of Fette rolling heads (demonstration)

3. Fette AC rolling head on a CNC lathe

4. Fette axial rolling head on a machining unit

Fette rolling systems

Rollable profiles



When you want to roll a variety of profiles!

Almost all standardized or special threads - from cylindrical and tapered triangular threads, through trapezoidal, round and semi-round threads to cylindrical wood threads and even buttress threads - can be rolled.

And what is more:

- Knurling
- Ring profiles without pitch
- Reduction of pipe ends
- Pipe forming
- Smoothing surfaces
- Special profiles
- Labeling

Fette rolling systems Typical workpieces



A small selection of workpieces that you can machine perfectly with our tools!

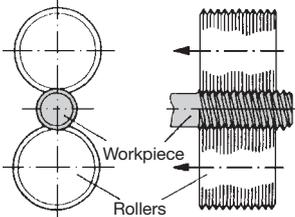
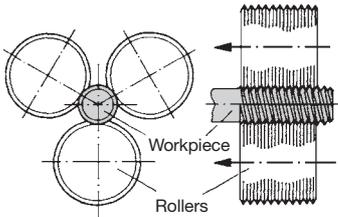
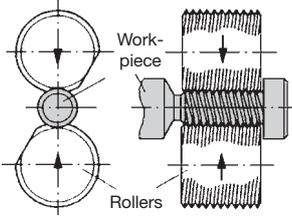
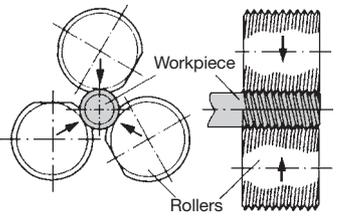
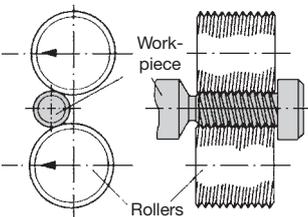
It is not important whether the work piece is to be machined when stationary or rotating. Endless threads or short threads can be rolled either in front of or behind a collar. Almost any material that has a minimum extension of about 5% can be rolled.

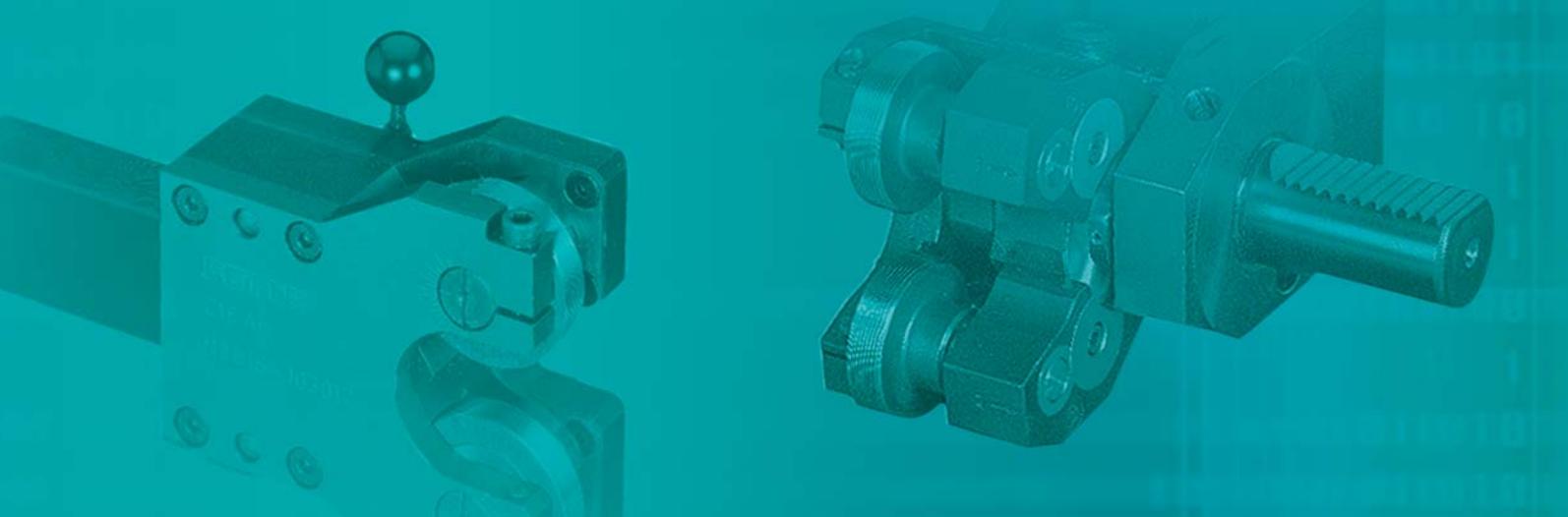
Thin-walled hollow object (pipes) can be rolled if an internal mandrel is used.

Fette rolling systems

Application summary

Types C, E and T are primarily designed for triangular threads. In exceptional cases – e.g. an easily rolled material and a very short thread – other profiles can also be rolled.

Rolling head type	Principal of function	Number of rollers	Roller form	Working range Ø
Axial rolling head type AC 	 <p>Workpiece Rollers</p> <p>Feed is axial (Direction of arrow) rolling head stationary, workpiece rotating</p>	2		8-72 mm 0.315" to 2.835"
Types F, FU, F-RN and K 	 <p>Workpiece Rollers</p> <p>Feed is axial (Direction of arrow) 1st rolling head rotating, workpiece stationary 2nd rolling head stationary, workpiece rotating</p>	3 (2-6)		1,4-230 mm 0.055" to 9.055"
Radial rolling heads Type C 	 <p>Work-piece Rollers</p> <p>Roller geometry generates radial feed Rolling head stationary, workpiece rotating</p>	2		5-36 mm 0.197" to 1.417"
Types E + EW 	 <p>Workpiece Rollers</p> <p>Roller geometry generates radial feed 1st rolling head rotating, workpiece stationary 2nd rolling head stationary, workpiece rotating</p>	3 (2)		3-45 mm 0.118" to 1.772"
Tangential rolling heads Type T 	 <p>Work-piece Rollers</p> <p>Feed is tangential (direction of arrow) Rolling head stationary, workpiece rotating</p>	2		1,6-64 mm 0.063" to 2.52"



Roller form	Rolling time	Particular advantages	Requirements/Machine	Rolling head holder
Unlimited	<p>Depending on thread length, rotation speed and pitch</p> <p>Example: M 10 x 1.5 Thread length 20 mm, 0.787"</p> <p>Example: 3/8 x 16 UNC Thread length .150"</p> <p>Rotation speed 1600 min-1/RPM</p> <p>Rolling time: 0.5 s</p>	<ul style="list-style-type: none"> ■ unlimited Profile length ■ specially for CNC machines ■ particularly between peaks 	<ul style="list-style-type: none"> ■ CNC lathe ■ CNC automatic lathe 	<p>Turret</p> <p>Saddle-slide and cross-slide</p> <p>NC-CNC controlled</p>
Unlimited	<p>Depending on thread length, rotation speed and pitch</p> <p>Example: M 10 x 1.5 Thread length 20 mm, 0.787"</p> <p>Example: 3/8 x 16 UNC Thread length .150"</p> <p>Rotation speed 1600 min-1/RPM</p> <p>Rolling time: 0.5 s</p>	<ul style="list-style-type: none"> ■ unlimited Profile length ■ workpiece stationary or rotating 	<ul style="list-style-type: none"> ■ universal lathe ■ CNC lathe ■ CNC automatic lathe ■ turret lathe ■ multiple spindle lathe ■ turning/milling centers ■ revolving transfer machines ■ transfer lines ■ special lathes 	<p>Saddle slide Turret</p> <p>Spindle head</p> <p>Tailstock</p>
Roller width	<p>Depending on rotation speed, roller groove number and pitch</p> <p>Example: M 10 x 1.5 Thread length 20 mm, 0.787"</p> <p>Example: 3/8 x 16 UNC Thread length .150"</p> <p>Rotation speed 1600 min-1/RPM</p> <p>Rolling time: 0.23 s</p>	<ul style="list-style-type: none"> ■ thread behind a collar ■ extremely short thread run-out ■ extremely short thread ■ extremely short machining time ■ automatic release 	<ul style="list-style-type: none"> ■ universal lathe ■ CNC lathe ■ CNC automatic lathe ■ turret lathe ■ multiple spindle lathe ■ turning/milling centers ■ revolving transfer machines ■ transfer lines ■ special lathes 	<p>Saddle slide</p> <p>Turret</p> <p>Cross slide</p>
Roller width	<p>Depending on rotation speed, roller groove number and pitch</p> <p>Example: M 10 x 1.5 Thread length 20 mm, 0.787"</p> <p>Example: 3/8 x 16 UNC Thread length .150"</p> <p>Rotation speed 1600 min-1/RPM</p> <p>Rolling time: 0.19 s</p>	<ul style="list-style-type: none"> ■ extremely short thread run-out ■ extremely short thread ■ extremely short machining time ■ workplace stationary or rotating- use on end cutting machines ■ automatic release 		<p>Saddle slide</p> <p>Turret</p> <p>Spindle head</p> <p>Tailstock</p>
Roller width	<p>Depending on rotation speed and engagement time</p> <p>Example: M 10 x 1.5 Thread length 20 mm, 0.787"</p> <p>Example: 3/8 x 16 UNC Thread length .150"</p> <p>Rotation speed 1600 min-1/RPM</p> <p>Rolling time: 0.56 s</p>	<ul style="list-style-type: none"> ■ thread behind a collar ■ extremely short thread run out ■ extremely short thread ■ including between peaks 	<ul style="list-style-type: none"> ■ all lathes with a controlled feed movement 	<p>Cross slide</p> <p>Turret</p>

Precision peeling heads



*Fette precision peeling heads
FS-00 to FS 90 (multiple range)*



Fette Chamfering Head



*Fette chamfering shaft
with chamfering tool (integrated)
and peeling head*

Perfection before rolling

A high-performance tool with indexable inserts for economically reducing the diameters of round and profiled material with diameters of 2-50 mm/0.079" to 1.965", regardless of whether rolled, drawn, forged or turned. Fette precision peeling heads achieve short of fabrication times through high cutting speeds and fast feed rates. Close manufacturing tolerances and good quality surfaces are achieved at the same time. Extremely economical, easy application through simple operation, long tool life and low servicing requirements.

One particular field of application is the peeling of external diameters in preparation for chipless thread manufacture using Fette thread rolling heads. Additionally, any desired cylindrical tenon can be economically created at the shaft ends at a peeling length of up to approx. 6 x the peeling diameter. The peeling head can be used here either stationary or rotating. The small, compact construction permits use on center and turret lathes, automatic lathes, drill and feed units as well as on Fette rolling machines.

The range of peeling tools also includes the Fette chamfering tool with indexable inserts for end chamfering or deburring peeled or turned tenons, shafts, bars and the like. Can be used in combination with the peeling head, or separately.

Why you are always right to choose Fette for thread rollers

Fette offers a wide range of rollers and rolling head versions, such as for:

- all common types of thread
- thread diameters from 1.4 up to 230 mm/ 0.055" to 9.055"
- many unusual and special profiles
- smoothing, edging, flanging and stamping
- almost any workpiece
- almost any material
- practically any cutting machine

Exploit the benefits of lightning-fast, chipless forming with Fette rolling heads!

Please contact our consultants or the responsible sales department or representative in your neighborhood, who can answer most technical or organizational questions. We would be happy to advise you and look forward to your call!

Thread rolling systems from the market leader offer more!

The width of our program, product quality and the service we provide have made us "Number 1" in this field. When it comes to thread rolling you should not be satisfied with the second-best solution. Time and again it is Fette's thread rolling systems that ensure an individual and optimum problem solution for our customers.

We not only offer you the widest range of rollers on the market, but we are also ready to help you with all our technical skill. Because every application is subject to its own special features, and is handled individually by our consultants. If your production department, for instance, is handling exotic materials, if unusual profile forms are required, or if the shape of the roller must be particularly adapted for the flow behavior of the material - Fette can always offer you a reliable and economical solution.

And not just perfectly, but fast:

When you are in a hurry, we will supply you the unique roller you need urgently as a special rush fabrication within a week of receipt of the order (against an appropriate price supplement).

You obtain thread rollers from our standard catalog range even faster. The rollers you have ordered will be shipped within a day – or at most two days – of receipt of order. No less than 1200 different versions can be delivered immediately from the warehouse at Schwarzenbek.

Ordering thread rollers for any Fette rolling head type is as easy as this!

Please make a copy of this page, and send it by letter post or fax.

From

Company: _____

Name: _____

Street address/PO Box: _____

Town/zip code: _____

Rush order Standard delivery time
(against price supplement)

Date: _____

Signature: _____

Thread rollers for:

1. Axial rolling heads

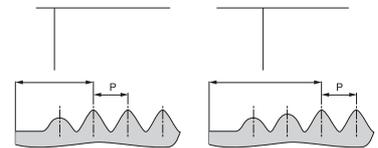
		Order	Example
	1. Number required		6
	2. Thread dimension		M 12 x 1,5-6 g
	3. Rolling head type		F 2
	4. Type of run-on		2 K
only if known	5. Roller code no.		2/06
	6. Item no.		150 9756

Length of the thread run-out on the workpiece at

Roller run-on type

1 K = approx. 2,3 x p

2 K = approx. 3,3 x p



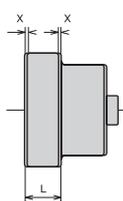
2.1 Radial rolling head type C

		Order	Example
	1. Number required		6
	2. Thread dimension		M 16 x 1,5-6 g
	3. Rolling head type		C 16
	4. Rolling head version		A V
	5. Rolling width "L", only when rolling is taking place behind collar 0		12
only if known	6. Roller code no.		C 16-034-A 12
	7. Item no.		217 3514

Attention!

For C, E and EW: Note the direction of spindle rotation and the type of application when specifying the rolling head version.

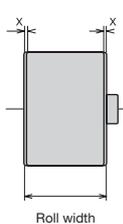
$x = 1 \times p$ (pitch)



2.2 Radial rolling heads type E + EW

		Order	Example
	1. Number required		6
	2. Thread dimension		M 16 x 2-6 g
	3. Rolling head type		E 23
	4. Rolling head version		A 00
only if known	5. Roller code no.		E 23-001-A 34
	6. Item no.		155 3412

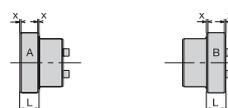
$x = 1 \times p$ (pitch)



3. Tangential rolling heads

		Order	Example
	1. Number required		6
	2. Thread dimension		M 8 x 1,25-6 g
	3. Rolling head type		T 18
	4. Roll width (Min-Max) or DIN 158		min 14, max 18 or DIN 158
	5. Rolling head version		A
only if known	6. Roller code no.		T 18-03-16 A
	7. Item no..		153 6343

Check the collar diameter before ordering. Pamphlet No. 1130 M8, pages 143-159. Roller width if possible as an even number, Roller width in min. and max.



$X = 1 \times p$ (pitch) conical thread rollers





Forming taps

Accurately dimensioned threads and significantly improved surfaces even on internal threads

Thread formers fabricate internal threads through cold forming, without chips. This method of manufacture is similar to the rolling of external threads. About 60% of the materials used in industry nowadays can effectively be formed in this way.

- 
- **High thread strength as a consequence of the compressed microstructure**
 - **Significantly improved surface to the formed thread, reduced roughness of the thread flanks**
 - **Extremely close-fitting threads (even without positive restraint)**
 - **No scrap threads when the diameter of the preliminary drilling is correctly observed**
 - **No lack of “axial true” in the forming tap**
 - **Longer tool life travel, leading to larger intervals between tool changes**
 - **Maximum possible stability**
 - **Particularly successful when used for pocket holes through its own forced lubrication**
 - **May also be used on simple machines**
 - **No chips – no chip clogging**
 - **Higher circumferential speed than with thread cutting**

HPF thread former with exchangeable, TiCN Plus-coated solid carbide front plate. The combination of the steel shaft and the carbide forming piece permits extremely high cutting speeds, and widens the range of applications for thread forming. Correctly observing the recommended diameter of the preliminary drilled hole is much more important when threads are formed than it is when they are cut, and contributes significantly to the quality and shape of the thread as well as to the service life of the thread former. For this reason, the optimum diameter of the preliminary drilled hole has been determined for the common thread sizes for all FETTE thread formers, and a special, solid carbide HPF drill has been developed, designed particularly for these preliminary holes.



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