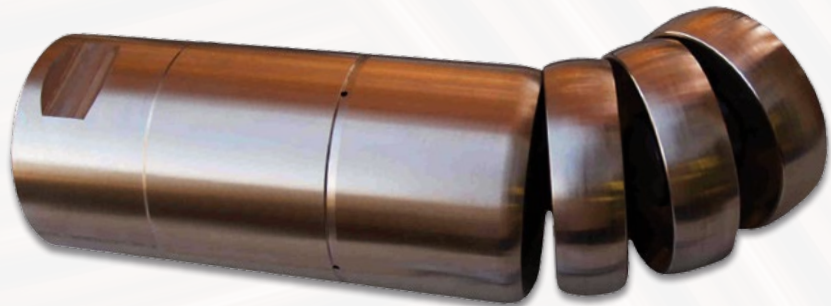


**ALBROMET<sup>®</sup>**

# ***METAL CONNECTS: TUBE BENDING TOOLS***

**SYSTEM FLEXIBLE MANDRELS, CONNECTORS,  
WIPER DIES & WIPER DIE INSERTS**





# TUBE BENDING TOOLS FROM ALBROMET: HIGHEST QUALITY AT THE BEST PRICE

*To get the perfect curve. With ALBROMET tube bending tools, tubes can be bent absolutely free of folds, also in narrow radii.*

ALBROMET is the leading manufacturer of finished tube bending tools made of aluminum bronzes, a material that compared to other materials has many advantages: exact form fitting and high manufacturing precision. These features provide optimum results in the treatment of tubes with different diameters and different materials.



Mandrels and wiper dies from aluminum bronze, which ALBROMET manufactures itself in Geretsried, prove themselves in all areas of application by their superior elongation and wear values. The nickel-free alloy provides very good sliding properties and thus shorter processing times. All our tools are also available in steel and coated, according to your intended use.

Another specialty of ALBROMET are ball links from a top-quality, high-strength tempered steel. This ensures minimal wear and reduces operating costs. By producing at ALBROMET, the costs remain manageable as well.

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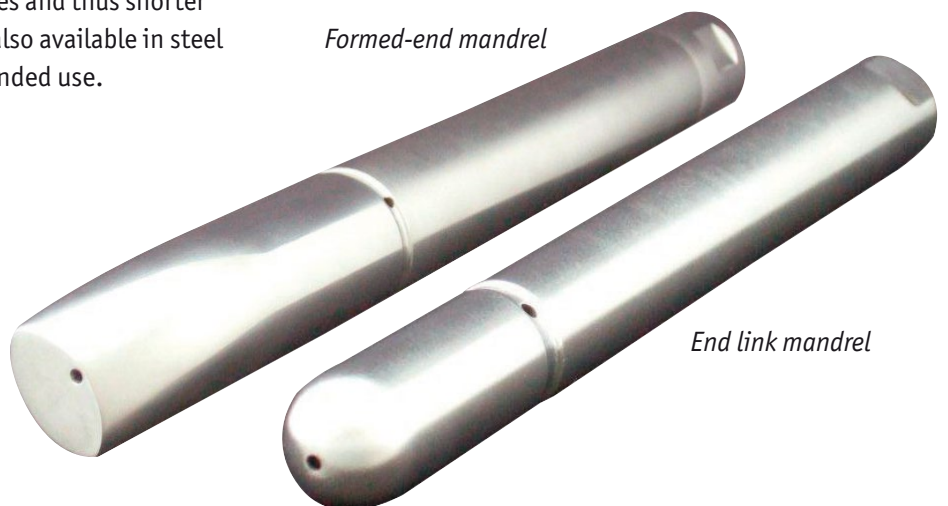
## HIGHEST QUALITY FOR TUBE BENDING TOOLS

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Since ALBROMET is the specialist in the field of aluminum bronzes, only the world's best alloys made from this material are used for mandrels and wiper dies.

Our ball links are made of tempered top-quality, high-strength steel. Efficient production of these tools still allows reasonable prices.

*Formed-end mandrel*



*End link mandrel*



## ***THE ALBROMET RANGE***

*Depending on the application and tube material, ALBROMET offers flexible mandrels and wiper dies of different materials. We place emphasis on the highest quality of materials to minimize wear and to make the positive fit for all machining operations as high as possible.*

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System flexible mandrels made of hard bronze ALBROMET 300 HSC

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System flexible mandrels made of tool steel and with coatings as needed

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Links: in stock in our warehouse, including the standard parts

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Wiper dies in square design

- Aluminum Bronze ALBROMET
  - Steel / with coatings
- 

Wiper die inserts

- Aluminum Bronze ALBROMET
  - Steel / with coatings
- 

Formed-end mandrels and end links in all variants

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*ALBROMET system flexible mandrel*



# **ALBROMET STANDARD SYSTEM FLEXIBLE MANDREL**

*Our superior quality standard system flexible mandrels obtain high bending quality. They are interchangeable and, due to spare part sets, have long lifetimes.*

- Can be used universally in the dimensions of the metric system.
- The bending quality is continuously high, the workpieces retain their shape.
- Collision tested by CAD technology.
- The standard flexible mandrels can be used to the bend ratio 1:1.
- Through spring force, the links will reset automatically.
- The flexible mandrels are produced in the highest quality and are easy to change.
- Through spare part sets, longer periods of use.

The ALBROMET System flexible mandrel in special design offers further possibilities:

- The MMS version is designed for minimum quantity lubrication.
- HG stands for high-gloss package, necessary for the bending of aluminized tubes.

## **ALBROMET SYSTEM FLEXIBLE MANDREL-SD<sup>©</sup>**

*With the ALBROMET System Flexible Mandrel-sd<sup>©</sup>, the principle of "small distance" is realized. This new design principle is to reduce the distance between the segments in comparison to the standard system, which brings significant advantages in the use of the tool itself.*

The ALBROMET tube bending mandrel causes less creases and reduces the risk of cracking without having to forego the usual ease of use of a flexible mandrel.

The ALBROMET System Flexible Mandrel-sd<sup>©</sup> makes this possible through its innovative design: it reduces the segment distance by more than 40%. This, along with the enlarged segment width, comes very close to realizing the vision of a flexible mandrel.

### **The advantages of using the System Flexible Mandrel-sd<sup>©</sup>:**

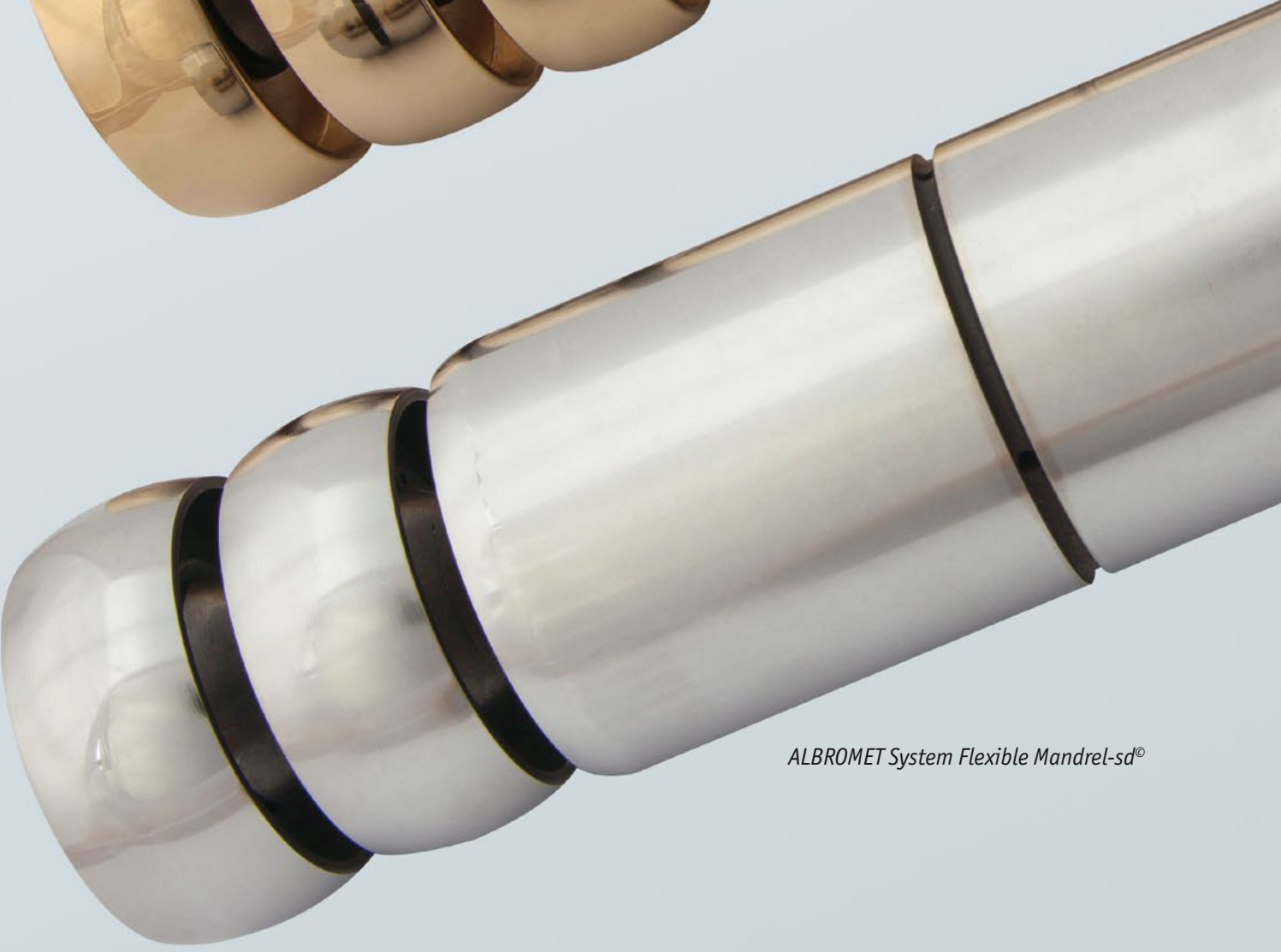
- Longer service life because of its solid construction
- Also suitable for high-strength tube materials
- Better form stability after the bending process
- Increased bending quality
- Maximized Process Safety

The ALBROMET System Flexible Mandrel-sd<sup>©</sup> is also available for minimum quantity lubrication and in the execution of HG as "high-gloss package".

*ALBROMET Standard System Flexible Mandrel*






*ALBROMET System Flexible Mandrel-sd®*





# PRODUCT OVERVIEW SYSTEM FLEXIBLE MANDREL

## CONNECTORS FOR SYSTEM FLEXIBLE MANDREL

No.	Tube ø	Split center link	Screw thread M	Shared interconnection	Final connection
4	15.9 - 18.9		4		
5	19.0 - 23.9		5		
6	24.0 - 28.4		8		
7	28.5 - 37.5		8		
8	38.0 - 43.5		10		
9	44.0 - 53.0		10		
10	53.5 - 66.0		12		
11	66.5 - 85.0		16		
12	85.5 - 117.0		16		

### Your advantages:

- Tensile strength > 1000 N/mm<sup>2</sup>
- Elongation > 10%
- Precise execution
- Metric system
- Compatible with inch system
- Includes accessories
- Delivery time: from stock



ALBROMET Bending Balls



Spare parts kit

### DIMENSIONS

No.	Tube ø	Shank length mm	Thread M
4	15.9 - 18.9	100	8
5	19.0 - 23.9	150	12
6	24.0 - 28.4	200	12
7	28.5 - 37.5	200	16
8	38.0 - 43.5	200	20
9	44.0 - 53.0	200	24
10	53.5 - 66.0	200	24
11	66.5 - 85.0	300	30
12	85.5 - 117.0	300	30

### TYPES OF MATERIEL

Tube Material	ALBROMET 300 HC	Hardened tool steel	Hardened tool steel TIN coated	Hardened tool steel CrN coated	Hardened tool steel DLC coated
Aluminum		★	★★		★★★
Stainless steel	★★★				
Copper Brass		★	★★	★★★	
Steel	★	★	★★★		

- Other dimensions on request.
- Standard equipment includes lubrication groove and boreholes, without a groove for the welding bead.
- Counter thread according to customer requirements.

ALBROMET System Flexible Mandrel

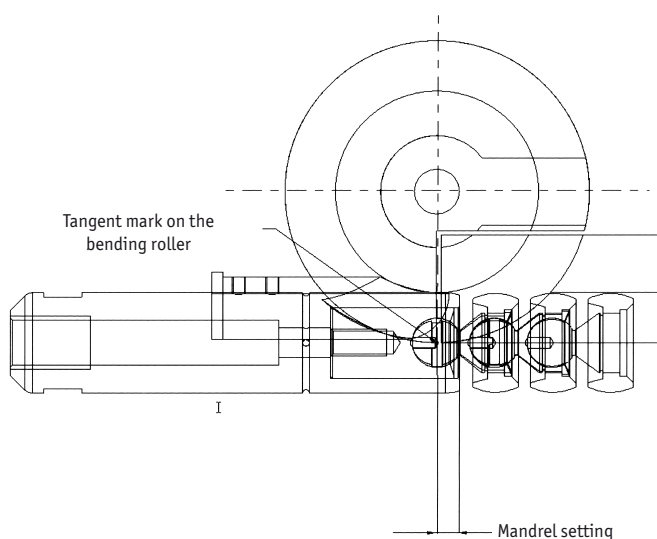


# DESIGN SYSTEM FLEXIBLE MANDREL

TECHNICAL SPECIFICATIONS																																
BR	1				1.25				1.5				2				2.5				3				4				5			
WF	E	M1	M2	W	E	M1	M2	W	E	M1	M2	W	E	M1	M2	W	E	M1	M2	FG	E	M1	M2	W	E	M1	M2	FG	E	M1	M2	W
10		1			1				1				1			X					X											
15		1	X		1	X			1				1			X					X											
20		2	X		1	X			1	X			1				1				1			X								
25		3	X		2	X			1	X			1	X			1				1			1								
30		3	X		3	X			2	X			2	X			1	X			1	X			1				1			
35		3	X		3	X			3	X			2	X			2	X			2	X		X	2				1			
40		4	X		3	X			3	X			3	X			3	X			3	X		X	2	X			2			
45		4	X		3	X			3	X			3	X			3	X			3	X		X	2	X			2	X		
50		4	X		3	X			3	X			3	X			3	X			3	X		X	2	X			2	X		
60		4	X		4	X			3	X			3	X			3	X			3	X		X	2	X			2	X		
70			5	X		5	X			5	X		3		X		3	X			3	X		X	3	X			2	X		
80			5	X		5	X			5	X			5	X		3	X			3	X		X	3	X			2	X		
90			5	X		5	X			5	X			5	X		3	X			3	X		X	3	X			3	X		
100			5	X		5	X			5	X			5	X			5	X		3	X		X	3	X			3	X		
125			5	X		5	X			5	X			5	X			5	X			5	X		X	4	X			4	X	
150			6	X		6	X			6	X			6	X			5	X			5	X		X	4	X			4	X	
175			7	X		7	X			7	X			7	X			7	X			6	X		X	6	X			6	X	
200			10	X		10	X			10	X			10	X			9	X			9	X		X	8	X			8	X	

- BR** Bending ratio (= bending radius center : outer tube diameter)
- WF** Wall thickness factor (= outer tube diameter : tube wall thickness)
- E** End link
- M1** Flexible mandrel (the value in the column indicates the number of segments)
- M2** Thin-walled flexible mandrel (the value in the column indicates the number of segments)
- W** Wiper Die

TYPES OF DESIGNS – INSTALLATION POSITION AND / TANGENT OFFSET				
Connectors		Pipe outer ø		Mandrel installation position / tangent offset
Size	Ball ø	from	to	
1	3.0	6.5	7.9	0.75
2	4.0	8.0	12.5	2.00
3	6.0	12.6	15.8	2.50
4	6.5	15.9	18.9	3.00
5	8.0	19.0	23.9	4.30
6	9.0	24.0	28.4	5.20
7	13.0	28.5	37.5	5.40
8	16.0	38.0	43.5	5.60
9	19.0	44.0	53.0	6.20
10	22.0	53.5	66.0	6.40
11	29.0	66.5	85.0	6.40
12	38.0	85.5	117.0	7.90



- Recommended adjustment of system flexible mandrel
- Finish over the tangent, depending on tube diameter (see table)
- Fine adjustment after analysis of the bent tubes





## ***ALBROMET ADVANTAGES AT A GLANCE***

- Our ALBROMET connectors offer a high tear strength and abrasion resistance through special processed steel with high strength properties and toughness values.
- Our wiper die features the best elongation break values. Its toughness is also excellent: stretching can exceed 16%.
- With nickel-free alloys, we ensure excellent sliding properties and thus faster processing times.
- The risk of fracture in the pipe processing is minimized by a precision fit and high manufacturing accuracy.
- An advantage, which we gladly pass on to our customers, is low prices due to our own production, as well as fast delivery.

**The ALBROMET company philosophy is to partner with employees, customers, and suppliers.  
Our motto is: "METAL CONNECTS"**

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