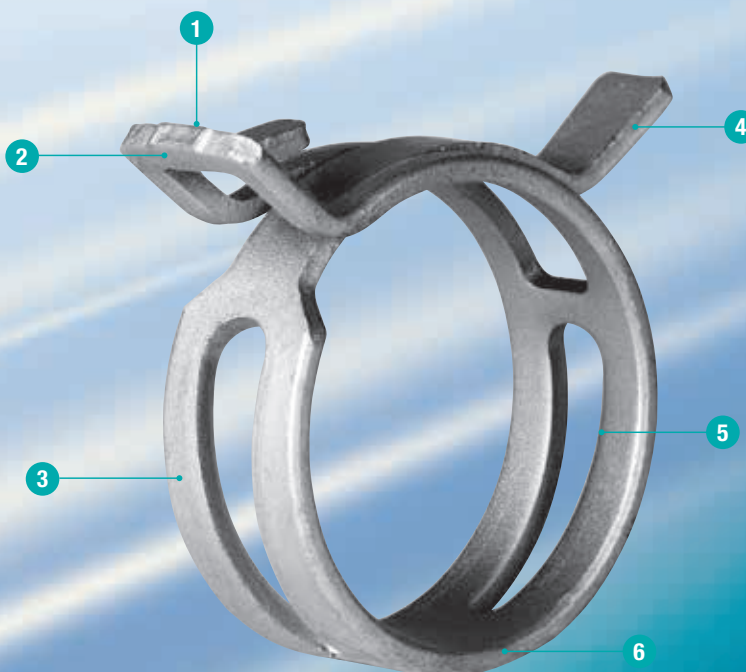


NORMACLAMP® FBS

Springband hose clamps in acc. with DIN 3021

Thanks to their dynamic spring properties, NORMACLAMP® FBS springband hose clamps are the perfect choice for hose spigot systems that are exposed to significant temperature fluctuations. Once installed, NORMACLAMP® FBS clamps ensure an automatic re-tensioning effect for an extended period. Even at low temperatures, this mechanism still enables sufficiently high levels of radial clamping force to be achieved, which in turn ensure excellent sealing reliability. With NORMACLAMP® FBS clamps, even hoses that are exposed to significant temperature fluctuations or have a tendency to "creep" can be joined securely.

- 1 Lot number stamped on**
— reliable traceability
- 2 NORMA® logo**
— a visible sign of quality
- 3 Organic/inorganic coating**
— optimum protection against corrosion
Different coating colours
— improved engine design
- 4 ND stamped on**
— prevents mistakes
- 5 Special design**
— even distribution of clamping force and excellent roundness
- 6 Rounded outer edges of band**
— optimum hose protection



Advantages at a glance

- One-piece, bolt-free hose clamp
- Even distribution of clamping force
- Optimum roundness
- Temperature resistance from -40 °C to 200 °C
- Clear traceability thanks to lot numbering
- Nominal diameters can be checked visually by means of colour-coding

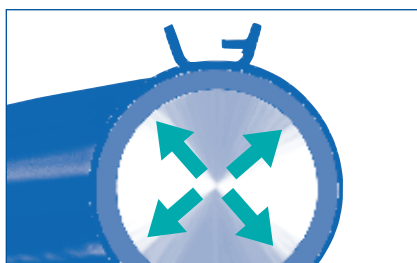
Applications

- Machine building
- White goods
- Agricultural machines
- Engine manufacturing
- Cooling and heating water circuits
- Fuel vent system
- Air ducts
- Water and brine outlet lines

NORMACLAMP® FBS

Short description

- Dynamic clamp
- Band material C 75 S
- Coating containing zinc; no chromium(VI)
- Nominal diameter of 13 mm to 80 mm in various gradations



At high temperatures

- Hose diameter increases
- FBS adapts to internal pressure



At low temperatures

- Hose diameter decreases
- FBS re-tensions
- Clamping force is retained and clamp provides perfect seal

Materials

Material	Zinc/aluminium coating	Organic coating	Corrosion resistance in salt spray testing
C 75 S	Base coat	Top coat	720 h and up

Ordering information

When submitting requests and orders, please specify the data in the following way

	1. Type	2. Nominal diameter	3. Band width
Example	FBS	13/	12

NORMACLAMP® FBS

Versions

NORMACLAMP® FBS Standard

A springband hose clamp with a dynamic spring properties, which ensure an automatic re-tensioning effect. It is particularly suitable for use with hose-spigot joints which are submitted to extreme temperature changes. Manual or pneumatic tools are used for professional installation.



NORMACLAMP® FBS R

A space-saving clamp. It was designed with the aim of achieving the smallest overall height that was technically possible so that it could be used in difficult installation conditions.



NORMACLAMP® FBS HC

A pre-opened version that is secured by a plastic retaining clip. Once the clamp has been pushed onto the hose, this clip can be released easily by hand.



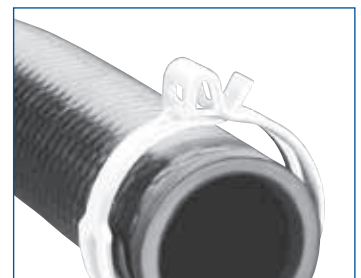
NORMACLAMP® FBS MC

A pre-opened (and, if required, pre-positioned) clamp that is secured with a small metal clip. The retaining clip for this version is removed by using pliers.



NORMACLAMP® FBS C

A pre-opened clamp that is pre-positioned on the hose. The retaining mechanism for this version is part of the band and is integrated into the clamp.



NORMACLAMP® FBS

NORMA® professional tools

Manual tools

For professional installation of FBS clamps, two types of hand-held pliers are available depending on the band width involved:

FBS hand-held pliers, Type 1

For small nominal diameters.



FBS hand-held pliers, Type 2

For all nominal diameters, with integrated safety lever for fixing the pliers in position.



Pneumatic tools

FBS pneumatic pliers, Type “S”

Suitable for “vertical” assembly operations where the clamp head is approached from above. Ideal for high volume series assembly.



FBS pneumatic pliers, Type “W”

Suitable for “horizontal” assembly operations where the clamp head is approached from the side. For high volume series assembly.

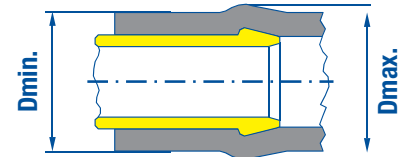
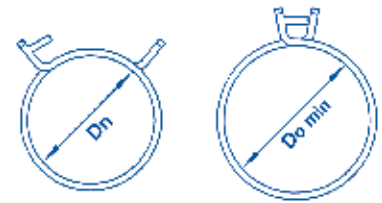


NORMACLAMP® FBS

Determine clamp

To determine which clamp is right for you, follow these steps:

1. Push the hose onto the spigot and measure $D_{min.}$ and $D_{max.}$
2. Based on the $D_{min.}$ value, determine the nominal diameter (D_n) of the clamp in question.
 $D_n = D_{min.}$
3. Compare the $D_{max.}$ value with the minimum diameter ($D_{0 min.}$) specified for the open clamp and select the clamp that is appropriate.
 $D_{0 min.} \geq D_{max.}$



If required, we can send you an appropriate template before you place your order. If you have any additional, application-specific questions, we will be happy to advise you in more detail.

Sizes, band widths & materials

NORMACLAMP® FBS				
Width	Designation	D_n mm	$D_{0 min}$ mm	Material C 75 S
12	FBS 13/12	13	14.5	X
	FBS 14/12	14	15.8	X
	FBS 15/12	15	16.8	X
	FBS 16/12	16	17.5	X
	FBS 17/12	17	18.5	X
	FBS 18/12	18	19.0	X
	FBS 19/12	19	21.0	X
	FBS 20/12	20	21.6	X
	FBS 21/12	21	22.5	X
	FBS 22/12	22	24.5	X
	FBS 23/12	23	24.7	X
	FBS 24/12	24	26.0	X
	FBS 25/12	25	27.0	X
	FBS 26/12	26	28.0	X
	FBS 27/12	27	29.0	X
	FBS 28/12	28	30.5	X
	FBS 29/12	29	31.5	X
	FBS 30/12	30	32.5	X
	FBS 32/12	32	34.5	X
	FBS 35/12	35	38.0	X
	FBS 36/12	36	39.0	X
	FBS 38/12	38	41.5	X
	FBS 40/12	40	42.5	X
	FBS 42/12	42	44.5	X
	FBS 44/12	44	46.5	X
	FBS 46/12	46	49.0	X
	FBS 47/12	47	50.0	X
	FBS 50/12	50	53.0	X

Other diameters available on request.



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