Technical Problem

~~Accordingly, the present invention has been made keeping in mind the above problems occurring in the prior art, and an object~~ Embodiments of the present invention ~~is to~~ provide a back ferrule for use in connection of a pipe that can increase the force for clamping the pipe and improve the sealability between the pipe and a pipe connector, and which has a superior shock absorption or compensation function for coping with contraction or expansion of a connection part of the pipe depending on a change in the external environment such as temperature or pressure or a change in external force.

~~Another object~~ Embodiments of the present invention ~~is to~~ provide a pipe connector with the back ferrule having the above-mentioned advantages.

Technical Solution

~~In order to accomplish the above objects, in an aspect,~~ An aspect of the present invention provides a back ferrule having a bellows-shaped elastic part. The back ferrule is used for pipe connection along with: a connector body mounted on an outer circumferential surface of a pipe, with an external thread formed on an outer circumferential surface of the connector body; a drive nut having an internal thread on an inner circumferential surface thereof; and a front ferrule. The back ferrule includes a nose part having a front-end

inclined surface; a tail part having a rear-end inclined surface; and an outer circumferential surface and an inner circumferential surface that connect the nose part to the tail part. An outer circumferential corrugated surface and an inner circumferential corrugated surface are respectively formed on the outer circumferential surface and the inner circumferential surface between the nose part and the tail part.

Each of the outer circumferential corrugated surface and the inner circumferential corrugated surface may include a valley and a ridge.

~~In another aspect,~~An embodiment of the present invention provides a pipe connector including a back ferrule. The back ferrule includes: a connector body that has an external thread on an outer circumferential surface thereof and is provided with an inclined insert part on one end thereof; a drive nut that is threaded over the connector body, and which has an internal thread on an inner circumferential surface thereof and is provided with a rear compressing part on one end thereof; a front ferrule disposed inside the inner circumferential surface of the drive nut; and a back ferrule that is disposed between the front ferrule and the back ferrule and has a bellows-shaped elastic part.

Advantageous Effects

A back ferrule according to embodiments of the present invention has a bellows-shaped elastic part formed between a nose part and a tail part. The bellows-shaped elastic part can increase the force of clamping a pipe to be connected to a pipe connector and improve the sealability between the pipe and the pipe connector.

Furthermore, thanks to the elastic and bending characteristics of the bellows-shaped elastic part, the back ferrule can be improved in a shock absorption or compensation function for coping with a change in the external environment such as temperature or pressure or a change in external force.

Description of Drawings

Fig. 1 is a sectional view illustrating a pipe connector including a back ferrule according to the present invention;

Fig. 2 is a sectional view showing a fastened state of the pipe connector in which the back ferrule of the present invention clamps a pipe;

Fig. 3 is a sectional view of the back ferrule according to the present invention;

Fig. 4 is a series of sectional views showing step-wise variation in the shape of a bellows-shaped elastic part of the back ferrule according to the present invention; and

Fig. 5 is a sectional view showing a pipe connector using a conventional ferrule.

CLAIMS

1. A back ferrule having a bellows-shaped elastic part, the back ferrule ~~(40)~~ being used, for pipe connection, along with: a connector body ~~(10)~~ mounted on an outer circumferential surface of a pipe, with an external thread formed on an outer circumferential surface of the connector body ~~(10)~~; a drive nut ~~(20)~~ having an internal thread on an inner circumferential surface thereof; and a front ferrule ~~(30)~~,

the back ferrule ~~(40)~~ comprising:

a nose part ~~(41)~~ having a front-end inclined surface ~~(41b)~~;

a tail part ~~(42)~~ having a rear-end inclined surface ~~(42b)~~; and

an outer circumferential surface ~~(43)~~ and an inner circumferential surface ~~(44)~~ connecting the nose part to the tail part,

wherein an outer circumferential corrugated surface ~~(45)~~ and an inner circumferential corrugated surface ~~(46)~~ are respectively formed on the outer circumferential surface and the inner circumferential surface between the nose part and the tail part.

2. The back ferrule of claim 1, wherein each of the outer circumferential corrugated surface ~~(45)~~ and the inner circumferential corrugated surface ~~(46)~~ comprises a valley ~~(45b), (46b)~~ and a ridge ~~(45a), (46a)~~.