circumferential surface side of the elastic member 400, upper or lower directionality is not formed and thus a product quality is stabilized. In other words, an error in picking the upper and lower sides of the elastic member 400 is not made for each product by a builder during an operation of assembly of the pipe joint 10. Further, the upper and lower ends of the substantial ring shape on the outer circumferential surface side and upper and lower ends on the inner circumferential surface side of the elastic member 400 do not all need to be chamfered. For example, in order to easily insert the pipe body 20 in the insertion groove 108, the chamfering may be performed only on the inner circumferential surface side.

[0016]

In addition, in the pipe joint 10 of the present embodiment, as illustrated in Fig. 5, in order to improve the workability, the depth of the insertion groove 108 of the joint main body 100 is set to have a size with which the elastic member 400 and the sleeve 300 can be fixed. In other words, since the height of the elastic member 400 is smaller in size than the depth of the insertion groove 108, the sleeve 300 which is disposed on the elastic member 400 in the insertion groove 108 is fixed by the insertion groove 108, and thus the workability during the insertion of the pipe body 20 in the sleeve 300 is improved. In other words, since the sleeve 300 is fixed to the insertion groove 108 and does not move during the insertion of the pipe body 20, the workability in the assembly of the pipe body 20 and the pipe joint 10 is improved. In this manner, in the pipe joint 10 of the present embodiment, the insertion groove 108 is formed to have a depth greater in size than the height of the elastic member 400, and thereby the groove functions as a sleeve fixing groove.

[0017]

The sleeve 300 is made of a synthetic resin and, as illustrated in Fig. 1 to Fig. 5, is formed from a cylindrically molded body having a smooth inner circumferential surface, and has an inner diameter with which the sleeve 300 can come into sliding contact with the outer circumferential surface of the pipe body 20 in a fitting manner. In the sleeve 300, a ~~cylindrical~~ annular section 300B having a thin thickness in an intermediate section thereof is formed to have a diameter which can be reduced toward the central axis, a cylindrical section 300A on the front end, which extends from the annular section 300B to the left side in the drawing, is formed to have a thick thickness, and the end face 300a of the distal end side as described above is formed on the front end face of the cylindrical section. In addition, an annular inclined surface (locking end face) 300A1, which engages with a locking protrusion 200T of the cap nut 200, is formed on the outer circumferential edge of the cylindrical section 300A on the rear end side. A cylindrical section 300C on the rear end side, which extends to the right

member (rubber). In Comparative Example 2, there is no member corresponding to the ring-shaped elastic member 400 and no member corresponding to the sleeve mounting elastic member (rubber). In the airtight (liquid-tight) test, the defined number of heat cycles was performed and the condition was confirmed in a pressure test in which water pressure of 1 MPa was maintained for five minutes and leakage was checked. In the results of the hot water circulating test, in Comparative Example 2 (without neither an elastic member corresponding to the ring-shaped elastic member 400 nor an elastic member corresponding to the sleeve mounting elastic member (rubber)), it was only possible to maintain the airtightness (liquid-tightness) to 100 cycles. In addition, in Comparative Example 1 (without an elastic member corresponding to the ring-shaped elastic member 400, but with an elastic member corresponding to the sleeve mounting elastic member (rubber)), improvement is further performed compared to Comparative Example 2; however, the airtightness (liquid-tightness) is maintained to 150 cycles to 200 cycles as a limit. In comparison, in Example 1, it is possible to maintain the airtightness (liquid-tightness) although exceeding 1300 cycles (further, in a continued test, 1500 cycles are checked). Accordingly, it is understood that significantly good durability is provided even under a hot cycle environment, compared to Comparative Example 1 and Comparative Example 2.

[0024]

As above, according to the pipe joint 10 of the present embodiment, the elastic member 400 having substantially the ring shape, which corresponds to the end face 300a of the distal end side of the sleeve 300, is disposed in the insertion groove 108 provided at a portion in which the distal end of the pipe body ~~200~~ 20 of the joint main body 100 is inserted, the pipe body 20 is mounted, and then the elastic member 400 presses, with the self-repulsion force of the elastic member, the end face 300a of the distal end side of the sleeve 300 in the axial direction. In this manner, the inner circumferential surface 300b of the proximal end side of the sleeve 300 compresses the pipe body 20 in the radial direction, and thereby it is possible to obtain high sealability and to maintain sufficient airtightness (liquid-tightness) even in a case of use, due to a structure, under a severe temperature cycle environment of a temperature of approximately 100°C from normal temperature. In addition, the sleeve 300 includes a plurality of notches 300c extending from one end portion in the axial direction. When the external thread section 106 of the joint main body 100 and the internal thread section 202 of the cap nut 200 are screwed, the intervals between the notches 300c are narrowed and the sleeve 300 is reduced in diameter. Accordingly, since the inner circumferential surface 300b of the proximal end side of the sleeve 300 compresses the pipe