

Title (en)
Tube with a plurality of spiral ribs and method of manufacturing the same

Title (de)
Mehrgängiges Rippenrohr und Verfahren zu dessen Herstellung

Title (fr)
Tube avec plusieurs nervures hélicoidales et son procédé de fabrication

Publication
EP 0687880 B1 19980826 (DE)

Application
EP 95108495 A 19950602

Priority
DE 4420756 A 19940615

Abstract (en)
[origin: DE4420756C1] The tube has multiple, circumferential, integral ribs on it's outer surface. Assuming a thread pitch of up to 4, a single group contains two adjacent rib run starts (A1, A2, A3...), with groups of rib starts, groups of three run starts and groups of four rib starts whose rib crests are upset to form thick rib ends. The rib crests are notched out, split and/or bent to the sides and/or upset in a rib pitch of 0.25-1.50 mm and rib height of 1.60 mm upwards. The inner ribs are in helix form at a preferred lead angle of 5-25 deg. and inner rib pitch of 0.5-3 mm, height 0.2-0.5 mm. The ribs are rolled out of the smooth tube surface by material displacement using a dissimilarly diametered disc rolling tool pressed into the tube wall as supported by mandrel. The tube being ribbed is rotated and/or fed forward to form the ribs so pitched that each tool completes a number of ribs.

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F28F 1/36; **F28F 1/42**; **B21C 37/20**

IPC 8 full level
F28F 1/12 (2006.01); **B21B 17/02** (2006.01); **B21B 17/08** (2006.01); **B21B 27/02** (2006.01); **B21C 37/15** (2006.01); **B21C 37/20** (2006.01); **B21D 5/12** (2006.01); **B21D 53/06** (2006.01); **F28F 1/36** (2006.01); **F28F 1/42** (2006.01); **F28F 13/18** (2006.01)

CPC (source: EP US)
B21C 37/207 (2013.01 - EP US); **F28F 1/36** (2013.01 - EP US); **F28F 1/42** (2013.01 - EP US); **F28F 1/422** (2013.01 - EP US); **F28F 13/185** (2013.01 - EP US); **F05C 2201/021** (2013.01 - EP US); **Y10S 165/525** (2013.01 - EP US); **Y10T 29/49382** (2015.01 - EP US); **Y10T 29/53122** (2015.01 - EP US)

Citation (examination)
DE 2758526 A1 19790705 - WIELAND WERKE AG

Cited by
CN112025138A

Designated contracting state (EPC)
DE FR GB SE

DOCDB simple family (publication)
DE 4420756 C1 19951130; CA 2150588 A1 19951216; CA 2150588 C 20061219; CN 1092787 C 20021016; CN 1121581 A 19960501; DE 59503311 D1 19981001; EP 0687880 A1 19951220; EP 0687880 B1 19980826; JP 3945785 B2 20070718; JP H0857535 A 19960305; KR 100365667 B1 20030304; KR 960001709 A 19960125; MY 114272 A 20020930; US 5761807 A 19980609; US 5803164 A 19980908; ZA 954310 B 19960305

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