Claims

1. A vacuum pump comprising:

a housing;

a rotor shaft supported by a bearing arrangement for rotation relative to said housing;

a lubricant supply system; and

a lubricant transfer device provided on said rotor shaft to transfer lubricant received from said lubricant supply system to a rolling bearing of said bearing arrangement,

wherein said lubricant supply system comprises a lubricant reservoir and a wicking element through which lubricant is transferred from said lubricant reservoir to said lubricant transfer device,

said wicking element comprises a body portion having an inner periphery and an outer periphery and a finger projecting from said inner periphery to engage said lubricant transfer device,

said lubricant reservoir has a major surface through which said lubricant is transferred to said body portion,

the body portion has a major surface facing said major surface of the lubricant reservoir to receive the lubricant transferred through said major surface of the lubricant reservoir, and

at least one of said inner periphery and said outer periphery is provided with at least one cut-out configured such that said major surface of the wicking element has a total surface area that is less that the total surface area of said major surface of the lubricant reservoir.

2. A vacuum pump as claimed in claim 1, wherein said lubricant reservoir comprises a first reservoir portion and a second reservoir portion, said first and second reservoir portions each have a said major surface through which lubricant is transferred to said body portion, said wicking element is disposed intermediate said first and second reservoir portions and has respective said major surfaces facing said major surfaces of said first and second reservoir

portions to receive said lubricant transferred from said lubricant reservoir and said at least one cut-out defines a flow path between said first reservoir portion and said second reservoir portion through which lubricant can flow from said first reservoir portion to said second reservoir portion without passing into said wicking element.

3. A vacuum pump as claimed in claim 1 or 2, wherein said lubricant reservoir further comprises an external wall, said outer periphery of said body portion is provided with a plurality of said cut-outs to define respective first portions of said outer periphery and said outer periphery includes a plurality of second portions disposed outwardly of said first portions and configured to engage said external wall to centre said wicking element with respect to said rotor shaft.

4. A vacuum pump as claimed in claim 1, 2 or 3, wherein a said cut-out is provided at said outer periphery opposite said finger to define a constriction in a lubricant flow path to said finger.

5. A vacuum pump as claimed in claim 4, wherein said wicking element has a second said finger projecting from said inner periphery and a respective oppositely disposed cut-out provided at said outer periphery and said fingers are disposed in diametrically opposed spaced apart relation.

6. A vacuum pump as claimed in any one of the preceding claims, wherein said lubricant reservoir has an aperture, said body portion has an aperture, said apertures are aligned and said lubricant transfer device is received in said aligned apertures.

7. A vacuum pump lubricant supply system comprising:
a lubricant reservoir; and

a wicking element that comprises a body portion having an inner periphery, an outer periphery and opposed major surfaces and at least one finger projecting from said inner periphery,

wherein said lubricant reservoir comprises a lubricant container that has a major surface engaging one of said opposed major surfaces of said body portion so that lubricant can migrate through said engaging major surfaces into said body portion,

said at least one finger projects from said inner periphery to, in use, engage a lubricant transfer device provided on a rotor shaft of a vacuum pump so that lubricant can wick from said body portion to said lubricant transfer device via said at least one finger, and

at least one of said inner periphery and said outer periphery is provided with at least one cut-out so that said major surface of said body portion that engages said major surface of said lubricant container has a total surface area that is less than the total surface area of said major surface of said lubricant container.

8. A vacuum pump lubricant supply system as claimed in claim 7, wherein said lubricant reservoir comprises a first reservoir portion and a second reservoir portion, said first and second reservoir portions each comprises a said lubricant container having a major surface through which lubricant can migrate into said body portion, said body portion is disposed between said lubricant containers such that said opposed major surfaces of said body portion engage a respective said major surface of said lubricant containers and said at least one cut-out defines a flow path through which lubricant can flow from said first reservoir portion to said second reservoir portion without passing into said wicking element.

9. A vacuum pump lubrication system as claimed in claim 7 or 8, wherein said outer periphery is provided with a plurality of said cut-outs that define respective first portions of said outer periphery, said outer periphery comprises a plurality of second portions disposed outwardly of said first portions and said second portions are configured to align with an outer periphery of said

lubricant reservoir for centring the wicking element with respect to said lubricant reservoir.

10. A vacuum pump lubrication system as claimed in claim 9, further comprising a member defining an enclosing wall and said second portions of said outer periphery of said body portion and said outer periphery of said lubricant reservoir engage said enclosing wall.

11. A vacuum pump lubrication supply system as claimed in any one of claims 7 to 10, wherein said wicking element has two said fingers disposed in diametrically opposed spaced apart relation and respective said cut-outs provided at said outer periphery and disposed in line with said fingers.

12. A vacuum pump lubrication system as claimed in any one of claims 7 to 11, wherein said lubricant reservoir has an aperture, said body portion has an aperture said apertures are aligned to define a passage to receive said lubricant transfer device and said at least one finger projects into said passage.

13. A method of manufacturing a vacuum pump lubricant supply system, said method comprising:

providing a lubricant reservoir;

providing a wicking element with a body portion having an inner periphery, an outer periphery and opposed major surfaces and a finger projecting from said body portion through which, in use, lubricant can travel from said body portion to an element on a vacuum pump rotor shaft engaged by said finger;

disposing a said major surface of said body portion in flow communication with a facing major surface of said lubricant reservoir so that lubricant can flow from said lubricant reservoir into said body portion through said major surfaces; and

providing at least one of said inner periphery and said outer periphery with at least one cut-out arranged to provide a restricted lubricant flow path from said body portion into said finger to limit lubricant flow into said finger, whereby said major

surfaces of said body portion each have a total surface area that is less than the total surface area of said major surface of said lubricant reservoir.

14. A method of manufacturing a vacuum pump lubricant supply system as claimed in claim 13, further comprising forming said lubricant container and body portion as annular bodies having aligned through-holes defining a passage to receive said element on a vacuum pump rotor shaft.

15. A method of manufacturing a vacuum pump lubricant supply system as claimed in claim 13 or 14, further comprising providing said lubricant reservoir with first and second reservoir portions that each comprise a lubricant container having a said major surface through which lubricant can flow from the lubricant container into said body portion, disposing said body portion intermediate said first and second reservoir portions so that lubricant can flow from the lubricant container of the first reservoir portion into the lubricant container of the second reservoir portion via said at least one cut-out without passing into said wicking element.