

Description

This invention relates to a closure according to the preamble of claim 1.

Such a closure is known from GB-A-1,122,699. The threaded ring is connected to the projecting collar by multiple flanging. To prevent rotating of the threaded ring relative to the collar, the threaded ring is shaped at its upper side polygonally engaging the corresponding polygonally shaped end part of the collar. Such a closure is designed for relatively light duty vessels. Inherently to the method of securing and connecting a relatively large difference exists between the external diameter and the internal diameter of the closure. Because of this the closure is not within the range of international standards for applying of fill and discharge devices. Based on the polygonal shape of the upper side of the threaded-shaped ring, the thread proper can start at some distance from the extremity. This has as drawback that the thread extends over a considerable distance inside of the container. Except from the relatively large quantity of material being necessary for shaping of the threaded ring, also openings have to be provided to be able to fully empty the container. If such a flange connection is subjected to elevated temperatures, sealing properties of such a connection cannot further be guaranteed. Subjecting to elevated temperatures is in particular of importance during cleaning of vessels before re-use. Because of the relatively light quality of the container according to GB-A-1,122,690 such containers are not suitable for repeated use. Furthermore these containers are not able to successfully come through the international standardised drop tests. After dropping on the collar end the polygonal will be distorted such that no engagement is provided between the threaded ring and the collar, such that it is not possible any longer to normally open the vessel.

The subject invention aims to obviate these drawbacks.

This aim is realized with the closure described with the features of the main claim. It is found that the welding connection is many times stronger than the flange connection, such that it is not necessary to provide further securing such as a polygon. After drop tests, the welded connection between the threaded ring and the collar end does not fail even if large momentums are applied (such as 100 kgm). As the threaded ring can remain circular at its upper side, the thread itself can directly start at the outer boundary, which on the one hand gives a material saving and makes it on the other hand possible to make the lower side of the threaded ring flush with the upperside of the container, such that it is not necessary to provide extra bores. The welded connection can be realized in such a limit-

ed space that the difference between internal and external diameter of the closure is within the international standards, such that it is possible to apply all usual fill and discharge fittings known in the prior art. By using of welding also during high temperature treatment of the container this connection will not deteriorate.

It is remarked that from DE-U-7500967 a welded connection is known between a container and a threaded ring, wherein however the container is not provided with a collar part, such as with the subject invention, but the threaded ring is directly welded to the container. This closure has as drawback that during dropping the threaded ring is not protected by the collar as with the subject invention, such that relatively easy distortion to the threaded ring occurs, such that after dropping of the vessel it is not possible to remove the plug. Furthermore it is nevertheless necessary to subject the container near the area which has to be connected to the threaded ring to special shaping to realize centering of the threaded ring with regard to the container. It is also necessary to precisely finish the end of the threaded ring to be welded, because there is only a small tolerance with regard to the position of the welding seam.

The free end of the collar part is preferably U-shaped, such that a rounding is realized at least partially coinciding with the rounding of the threaded ring, such that centering and connection of the threaded ring with regard to the collar part is optimized.

The invention will be further elucidated referring to embodiments shown in the drawings, wherein:

Fig. 1 shows a diagrammatically side view in cross section of a container provided with a collar;

Fig. 2 shows schematically in cross section a threaded ring,

Fig. 3 shows the threaded ring positioned on the container, and

Fig. 4 shows a further embodiment of the collar.

In Fig. 1 a container is generally indicated with 1. The interior of the container is indicated with 2. Projecting from the container collar 3 is provided.

In Fig. 2 a threaded ring is shown, generally indicated with 4 provided with beaded edge 5. This edge is not completely beaded but a gap 6 exists being as wide or wider than the thickness of the upper part 7 of the collar. In the embodiment shown the casing 8 of the threaded ring is cylindrical whilst collar 3 slightly tapers outwardly.

In Fig. 3 the situation is shown after providing of the threaded ring 4 in container 1. From this it is clear that the connection is at the upper side of collar 3. If the container 1 drops on the threaded ring 4, this will together with collar 3 move in-

wardly. During this collar 3 deforms considerable and threaded ring 4 does not deform. Also at the internal side 2 between threaded ring 4 and collar 3 a space 9 is provided. Because of this space the threaded ring 4 can deflect within collar 3 if beaded edge 5 or a plug inserted therein is hit, without fear for damage to the thread. The connection between threaded ring 4 and collar 3 is realized near beaded edge 5 and the upper side of collar 7.

This connection can be realized with all welding technics known in the art such as friction welding and roll welding.

However, preferably laser welding is used, because it is possible to heat a very small strip of material, such that the heat affected zone is relatively limited and the sealing surface of the threaded ring has not to be further finished. Furthermore it is now possible to exactly determine the position of the weld by focussing the laser beam to a determined point. By later providing of the threaded ring with beaded edge 5 it is possible to first provide a so called label ring. Furthermore standard parts as used with pressed closures can be used. Using welding all around it is not necessary to use a sealing ring, which is more particular of importance if the vessel has to be used several times.

In fig. 4 a further embodiment of the collar is shown generally indicated with 11. In contrast to the first embodiment the free end is doubled with edge 12. Because of this rounding 13 is realized which at least corresponds with rounding in gap 6 of threaded ring 4. In this way better centering and better connection of threaded ring to the collar is obtained.

Claims

1. Closure assembly of a container (1) provided with a collar (3) projecting outwardly from the container, wherein a threaded ring (4) is mounted in said collar, space being left between the ring (4) and said collar (3), and wherein a projecting part (5) of the ring is connected to the free extremity of the collar (3) remote from the container (1), characterized in that the free extremities of both the collar (3) and the threaded ring (4) remote from the container (1) have a circular cross section, the connection between the collar (3) and the threaded ring (4) consists of a welding seam, this seam being arranged adjacent to the thread part of the threaded ring, said ring being cylindrical and having a length such that the end of the ring (4) distal from the welding seam does not project beyond the collar (3) into the container (1).

2. Closure according to claim 1, wherein the projection (5) of the threaded ring comprises a bead wherein the free extremity of the collar (3) is received.

3. Closure according to claim 2, wherein the collar is U-shaped near its free extremity.

Patentansprüche

1. Behälterverschluss (1), versehen mit einem Kragen (3), der von dem Behälter nach außen vorsteht, wobei ein Gewinding (4) in den Kragen montiert ist, ein Zwischenraum zwischen dem Ring (4) und dem Kragen (3) gelassen wurde und wobei ein vorspringender Teil (5) des Rings mit dem freien, vom Behälter (1) fernen äußeren Ende des Kragens (3) verbunden ist, **dadurch gekennzeichnet, daß** die freien äußeren Enden sowohl des Kragens (3) als auch des vom Behälter (1) fernen Gewinderings (4) einen kreisförmigen Querschnitt haben, daß die Verbindung zwischen dem Kragen (3) und dem Gewinding (4) aus einer Schweißnaht besteht, wobei diese Naht in der Nähe des Gewindeteils des Gewinderings angeordnet ist, wobei der Ring zylindrisch ist und eine solche Länge hat, daß das von der Schweißnaht ferne Ende des Rings (4) nicht über den Kragen (3) hinaus in den Behälter (1) hineinragt.
2. Verschuß nach Anspruch 1, wobei der Vorsprung (5) des Gewinderings eine Rundkante bzw. eine Wulst aufweist, worin das freie äußere Ende des Kragens (3) aufgenommen wird.
3. Verschuß nach Anspruch 2, wobei der Kragen nahe seinem freien äußeren Ende U-förmig ist.

Revendications

1. Fermeture d'un récipient (1) comportant un collet (3) faisant saillie vers l'extérieur du récipient, dans laquelle une bague filetée (4) est montée dans ledit collet, un espace étant ménagé entre la bague (4) et ledit collet (3), et dans laquelle une partie en saillie (5) de la bague est reliée à l'extrémité libre du collet (3) éloignée du récipient (1), caractérisée en ce que les extrémités libres du collet (3) et de la bague filetée (4) éloignées du récipient (1) ont une section transversale circulaire, la liaison entre le collet (3) et la bague filetée (4) est constituée par un cordon de soudure, ce cordon étant disposé au voisinage du filetage de la bague filetée, ladite bague étant cylindrique et possédant une longueur telle que l'extrémité



de la bague (4) éloignée du cordon de soudure ne fait pas saillie au-delà du collet (3) dans le récipient (1).

2. Fermeture selon la revendication (1), dans laquelle la partie en saillie (5) de la bague filetée comprend une cavité dans laquelle est reçue l'extrémité libre du collet (3). 5
3. Fermeture selon la revendication (2), dans laquelle le collet est en forme de U au voisinage de son extrémité libre. 10

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