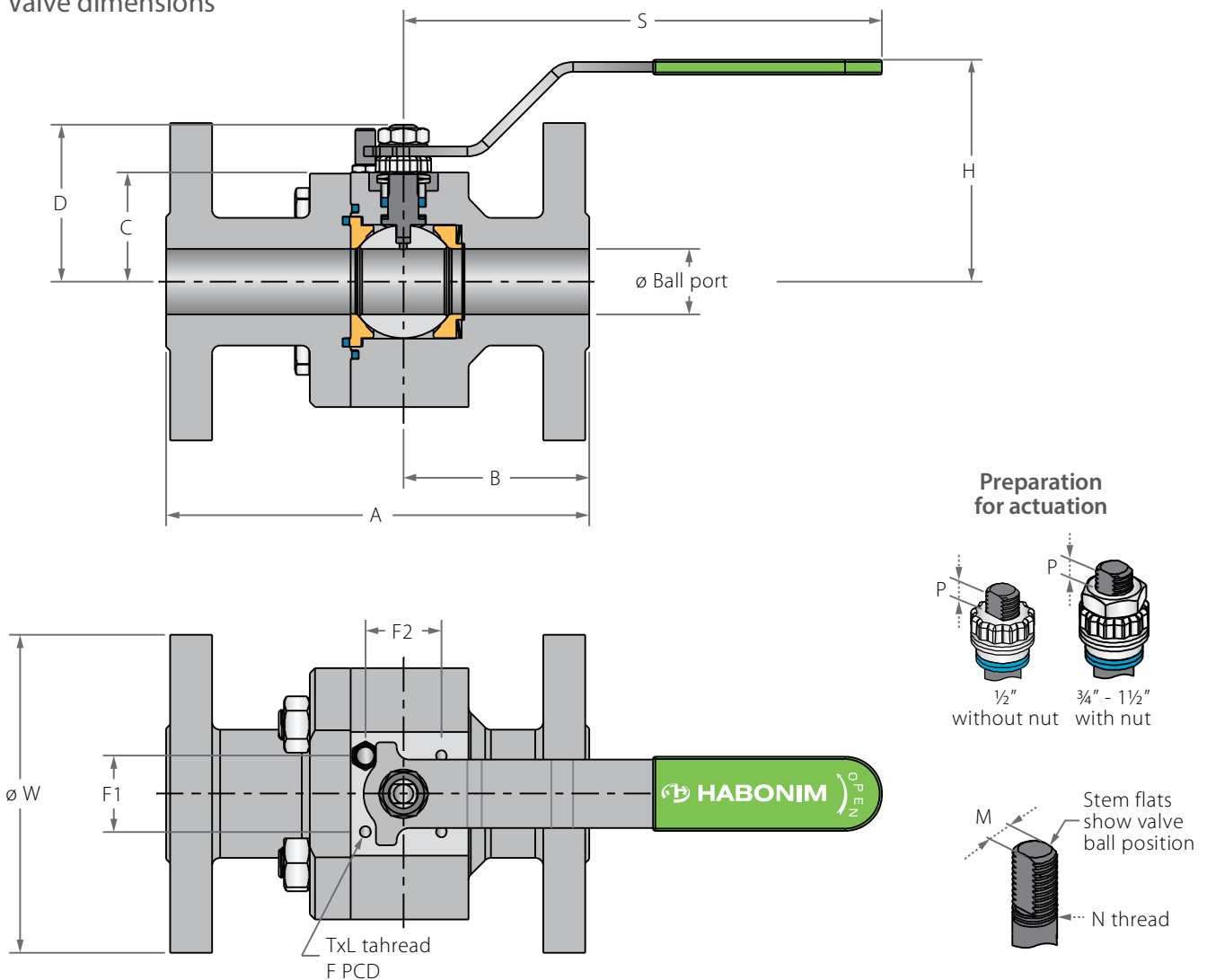
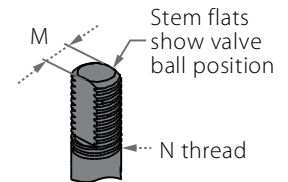
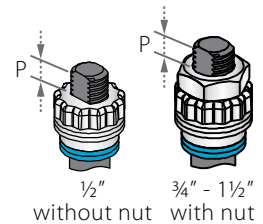


**Z78W****Z78P****1/2"-1 1/2" | DN15-DN40 | PN40**Floating Ball Flanged Up to **W** 260°C (500°F) | **P** 400°C (750°F)

## Valve dimensions



## Preparation for actuation



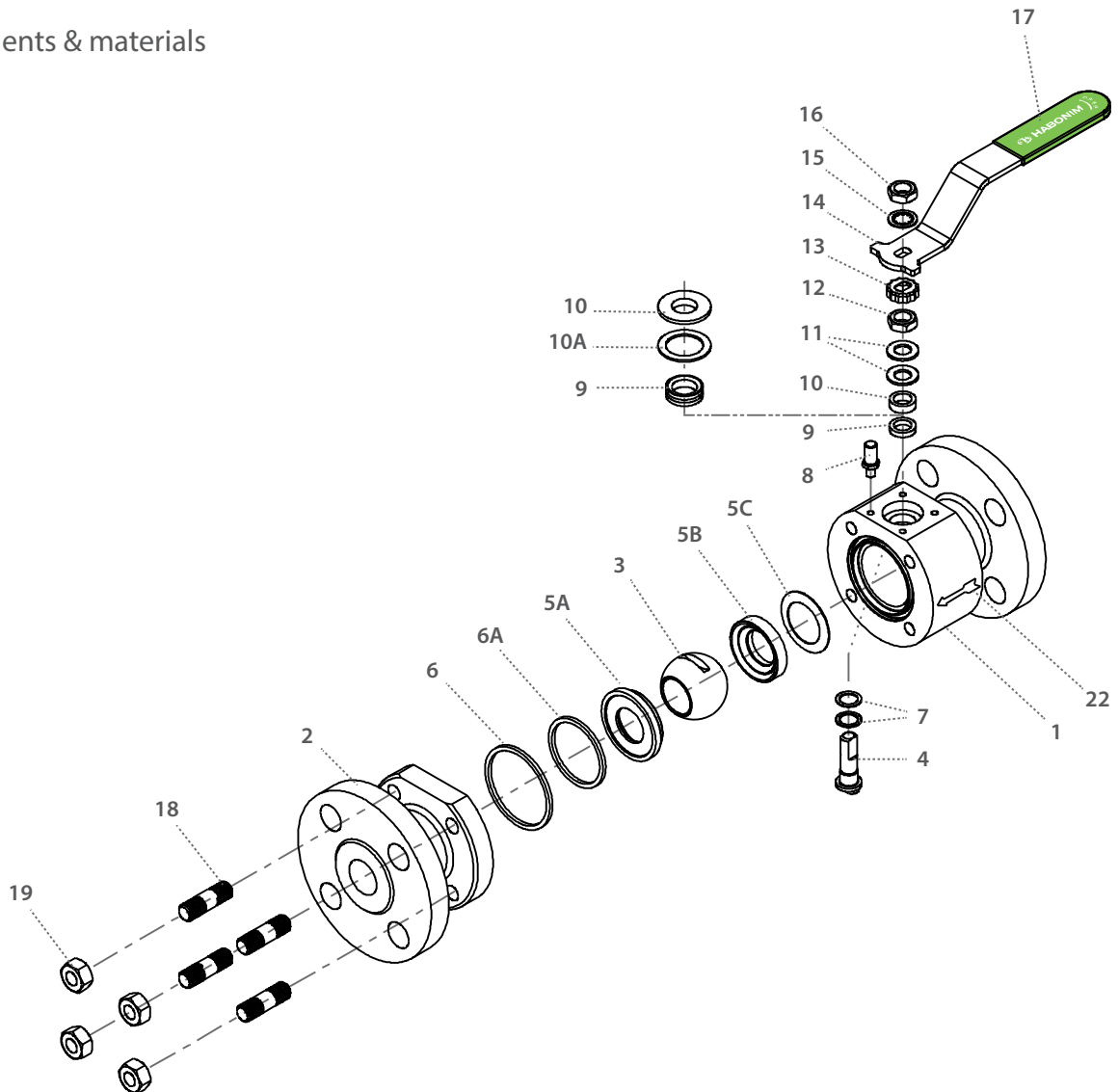
| Std. port | Unit | Ball port | A      | B     | C     | D     | H      | S      | W      | M    | N          | P    | F     | TxL   | Weight kg/lb | Cv |     |
|-----------|------|-----------|--------|-------|-------|-------|--------|--------|--------|------|------------|------|-------|-------|--------------|----|-----|
| DN15      | mm   | 14.30     | 130.00 | 49.00 | 29.40 | 38.40 | 92.00  | 151.00 | 95.00  | 5.54 | 1/2" UNF   | 6.65 | (F03) | 36.00 | M5x10        | 3  | 28  |
| 1/2"      | inch | 0.56      | 5.11   | 1.93  | 1.16  | 1.51  | 3.62   | 5.94   | 3.74   | 0.22 |            | 0.26 |       | 1.42  |              | 7  | 32  |
| DN20      | mm   | 20.65     | 150.00 | 58.00 | 38.20 | 55.70 | 103.50 | 170.00 | 105.00 | 7.54 | 3/4" UNF   | 7.40 | (F04) | 42.00 | M5x10        | 4  | 46  |
| 3/4"      | inch | 0.81      | 5.90   | 2.28  | 1.50  | 2.19  | 4.07   | 6.69   | 4.13   | 0.30 |            | 0.29 |       | 1.65  |              | 9  | 53  |
| DN25      | mm   | 25.50     | 160.00 | 55.00 | 42.65 | 60.20 | 108.00 | 170.00 | 115.00 | 7.54 | 1" UNF     | 7.40 | (F04) | 42.00 | M5x10        | 6  | 80  |
| 1"        | inch | 1.00      | 6.30   | 2.17  | 1.68  | 2.37  | 4.25   | 6.69   | 4.53   | 0.30 |            | 0.29 |       | 1.65  |              | 13 | 93  |
| DN40      | mm   | 38.10     | 140.00 | 65.90 | 48.20 | 77.70 | 124.00 | 220.50 | 150.00 | 8.71 | 1 1/2" UNF | 8.50 | (F05) | 50.00 | M6x12        | 8  | 220 |
| 1 1/2"    | inch | 1.50      | 5.51   | 2.59  | 1.90  | 3.06  | 4.88   | 8.68   | 5.91   | 0.34 |            | 0.33 |       | 1.97  |              | 18 | 255 |

**Z78W****Z78P**

1/2"-1 1/2" | DN15-DN40 | PN40

Floating Ball Flanged Up to **W** 260°C (500°F) | **P** 400°C (750°F)

## Components &amp; materials



| Item | Description          | Material specification   | Qty. |
|------|----------------------|--|------|
| 1    | Body                 | Acc. Ordering Code   | 1    |
| 2    | End                  | Acc. Ordering Code   | 1    |
| 3    | Ball                 | Acc. Ordering Code   | 1    |
| 4    | Stem                 | Acc. Ordering Code   | 1    |
| 5A   | Upstream seat        | Acc. Ordering Code   | 1    |
| 5B   | Downstream seat      | Acc. Ordering Code   | 1    |
| 5C   | Upstream disc spring | Inconel 718  | 1    |
| 6*   | Body seal            | Graphite   | 1    |
| 6A*  | Seat seal            | Graphite   | 1    |
| 7*   | Stem thrust seal     | A479 316L Hardended with LTPN, B637 N07718 Inconel 718, Virgin peek, PCTFE | 2    |
| 8    | Stop pin             | S. Steel   | 1    |
| 9*   | Stem seal            | Graphite, CF PTFE, TFM   | 1    |
| 10   | Follower             | S. Steel   | 1    |

| Item | Description      | Material specification | Qty. |
|------|------------------|------------------------|------|
| 10A* | Slide Bearing    | S. Steel               | 1    |
| 11   | Disc spring      | S. Steel               | 2    |
| 12   | Stem nut         | S. Steel               | 1    |
| 13   | Locking clip     | S. Steel               | 1    |
| 14   | Handle           | S. Steel               | 1    |
| 15   | Serrated washer  | S. Steel               | 1    |
| 16   | Handle nut       | S. Steel               | 1    |
| 17   | Sleeve           | PVC                    | 1    |
| 18   | Body bolts/studs | S. Steel               | 4    |
| 19   | Body nut         | S. Steel               | 4    |
| 22   |                  | S. Steel               | 1    |
| 23   | Tag (not shown)  | S. Steel               | 1    |

\* Repair kit components

**Z78W****Z78P**

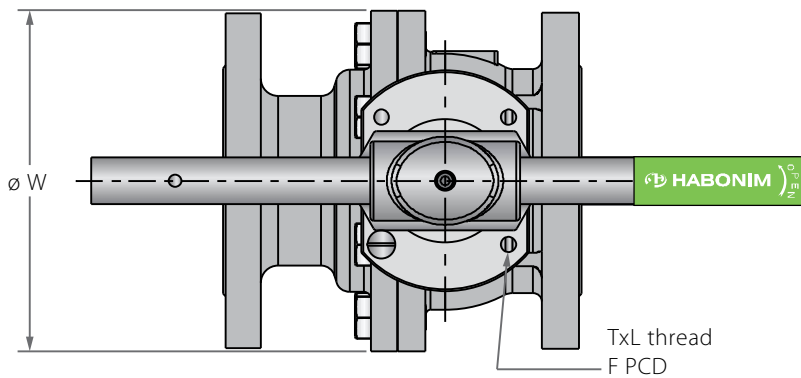
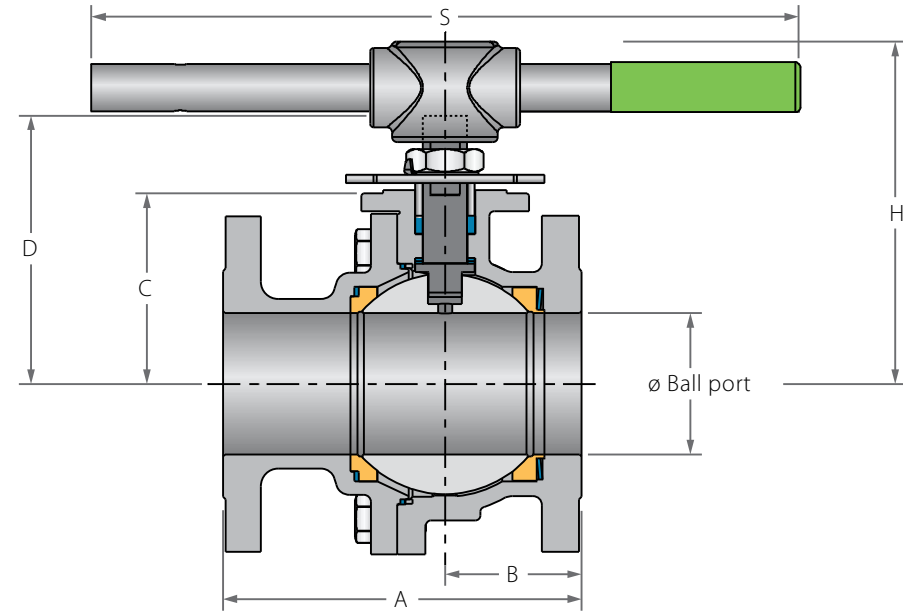
2" | DN50 | PN40

**Z77W****Z77P**

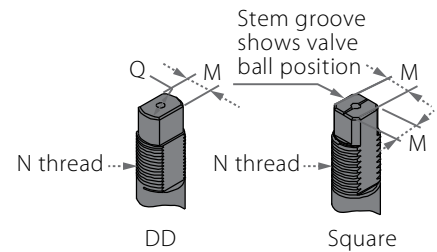
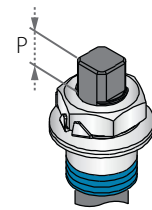
3"-6" | DN80-DN150 | PN16

Floating Ball Flanged Up to **W** 260°C (500°F) | **P** 400°C (750°F)

Valve dimensions



Preparation for actuation



| Std. port | Unit | Ball port | A      | B      | C      | D      | H      | S      | W      | M     | M (DD) | Q     | N             | P     | F     | TxL    | Weight kg/lb | Cv |      |
|-----------|------|-----------|--------|--------|--------|--------|--------|--------|--------|-------|--------|-------|---------------|-------|-------|--------|--------------|----|------|
| DN50      | mm   | 50.05     | 150.00 | 60.70  | 70.00  | 111.60 | 137.30 | 256.00 | 165.00 | -     | 13.90  | 20.00 | M20x2.5       | 14.60 | (F07) | 70.00  | M8X12        | 11 | 430  |
| 2"        | inch | 1.97      | 5.91   | 2.39   | 2.76   | 4.39   | 5.41   | 10.08  | 6.50   | -     | 0.55   | 0.79  |               | 0.57  |       | 2.76   |              |    | 25   |
| DN80      | mm   | 80.00     | 180.00 | 77.50  | 108.00 | 154.60 | 194.80 | 610.00 | 200.00 | 18.90 | 15.90  | 22.70 | 1"-14 UNF-2A  | 16.70 | (F10) | 102.00 | M10X20       | 24 | 1000 |
| 3"        | inch | 3.15      | 7.09   | 3.05   | 4.25   | 6.09   | 7.67   | 24.00  | 7.87   | 0.74  | 0.63   | 0.89  |               | 0.66  |       | 4.02   |              |    | 53   |
| DN100     | mm   | 100.00    | 190.00 | 84.50  | 124.00 | 210.80 | -      | -      | 225.00 | 18.90 | 15.90  | 22.70 | 1"-14 UNF-2A  | 16.70 | (F10) | 102.00 | M10X20       | 31 | 1830 |
| 4"        | inch | 3.94      | 7.48   | 3.33   | 4.88   | 8.30   | -      | -      | 8.86   | 0.74  | 0.63   | 0.89  |               | 0.66  |       | 4.02   |              |    | 69   |
| DN150     | mm   | 150.00    | 350.00 | 163.50 | 179.00 | 248.50 | -      | -      | 328.00 | 28.45 | 23.75  | 35.20 | 1½"-12 UNF-2A | 26.20 | (F12) | 125.00 | M12X20       | 78 | 4380 |
| 6"        | inch | 5.91      | 13.78  | 6.44   | 7.05   | 9.78   | -      | -      | 12.91  | 1.12  | 0.94   | 1.39  |               | 1.03  |       | 4.92   |              |    | 172  |

Z78W

Z78P

2" | DN50 | PN40



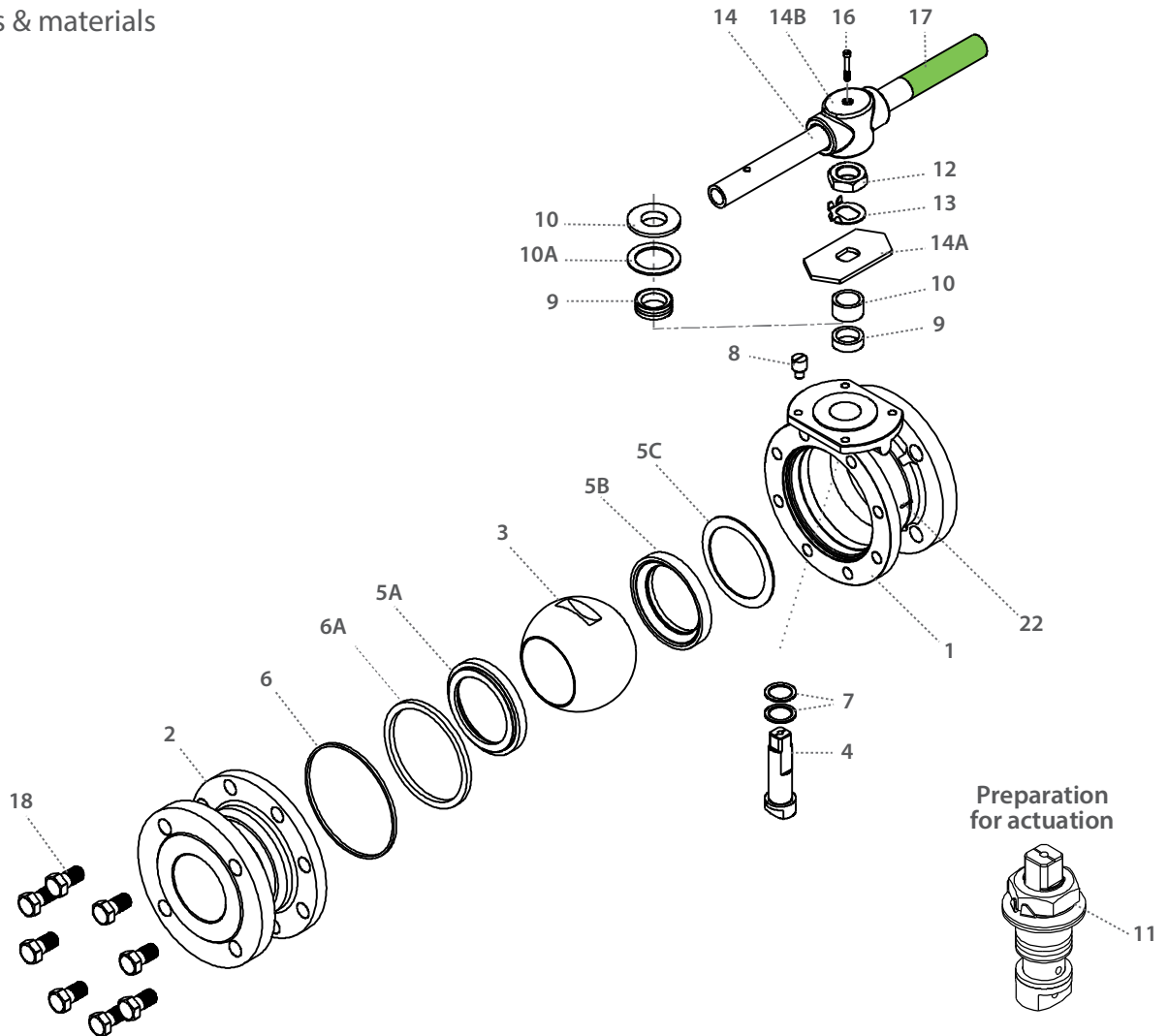
Z77W

Z77P

3"-6" | DN80-DN150 | PN16

Floating Ball Flanged Up to **W** 260°C (500°F) | **P** 400°C (750°F)

Components & materials



| Item | Description          | Material specification   | Qty. |
|------|----------------------|--|------|
| 1    | Body                 | Acc. Ordering Code   | 1    |
| 2    | End                  | Acc. Ordering Code   | 1    |
| 3    | Ball                 | Acc. Ordering Code   | 1    |
| 4    | Stem                 | Acc. Ordering Code   | 1    |
| 5A   | Downstream seat      | Acc. Ordering Code   | 1    |
| 5B   | Upstream seat        | Acc. Ordering Code   | 1    |
| 5C   | Upstream disc spring | Inconel 718  | 1    |
| 6*   | Body seal            | Graphite   | 1    |
| 6A*  | Seat seal            | Graphite   | 1    |
| 7*   | Stem thrust seal     | A479 316L Hardended with LTPN, B637 N07718 Inconel 718, Virgin peek, PCTFE | 2    |
| 8    | Stop pin             | S. Steel   | 1    |
| 9*   | Stem seal            | Graphite, CF PTFE, TFM   | 1    |
| 10   | Follower             | S. Steel   | 1    |

| Item | Description     | Material specification | Qty. |
|------|-----------------|------------------------|------|
| 10A* | Slide Bearing   | S. Steel               | 1    |
| 11   | Disc spring     | S. Steel               | 2    |
| 12   | Stem nut        | S. Steel               | 1    |
| 13   | Tab lock washer | S. Steel               | 1    |
| 14** | Handle          | S. Steel               | 1    |
| 14A  | Stop plate      | S. Steel               | 1    |
| 14B  | Wrench head     | S. Steel               | 1    |
| 16   | Wrench bolt     | S. Steel               | 1    |
| 17   | Sleeve          | PVC                    | 1    |
| 18   | Body bolts      | S. Steel               | 8-12 |
| 22   |                 | S. Steel               | 1    |
| 23   | Tag (not shown) | S. Steel               | 1    |

\* Repair kit components

\*\* Gear operator should be used for size 4" DN100 and above (handle components are not included)