

# Common cavities and tooling

RE 18325-70/09.24  
Replaces: 01.23

2-way

3-way / 3-way short

4-way

## Summary

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| CA-12A-3C                 | 3    |
| CA-16A-3C                 | 3    |
| CA-20A-3C                 | 3    |
| Tools                     | 3    |

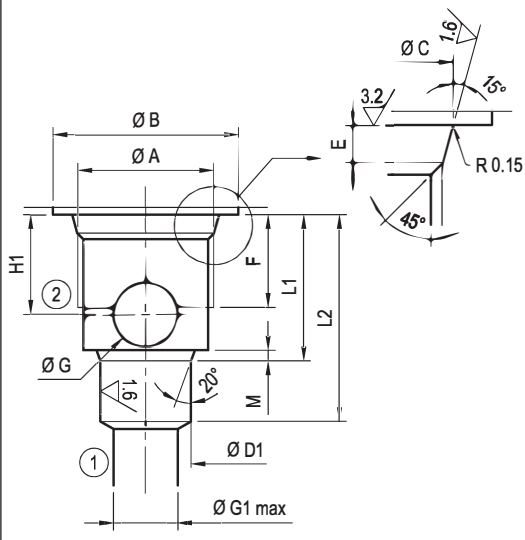
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| Tools               | 4    |
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| CA-12A-4N           | 5    |
| CA-16A-4N           | 5    |
| CA-20A-4N           | 5    |
| Tools               | 5    |

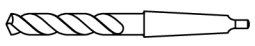
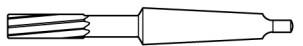
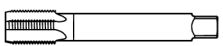
# Common cavities - Tools

## 2-way

1 mm = 0.03937 in

1 in = 25.4 mm

| TWO WAY                                                                                                                                                                                                                                                                                                                                     |    | CA-08A-2N                           | CA-10A-2N                            | CA-12A-2N                            | CA-16A-2N                            | CA-20A-2N                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
|  <p>General tolerance : <math>\pm 0.3</math> mm</p> <p>  0.03<br/>  0.02         </p> | A  | 3/4-16 UNF-2B                       | 7/8-14 UNF-2B                        | 1-1/16 12 UN-2B                      | 1-5/16 12 UN-2B                      | 1-5/8 12 UN-2B                       |
|                                                                                                                                                                                                                                                                                                                                             | B  | 28                                  | 30                                   | 35                                   | 42                                   | 48                                   |
|                                                                                                                                                                                                                                                                                                                                             | C  | 20.6 <sup>+0.1</sup> <sub>-0</sub>  | 23.9 <sup>+0.1</sup> <sub>-0</sub>   | 29.2 <sup>+0.1</sup> <sub>-0</sub>   | 35.5 <sup>+0.1</sup> <sub>-0</sub>   | 43.5 <sup>+0.1</sup> <sub>-0</sub>   |
|                                                                                                                                                                                                                                                                                                                                             | D1 | 12.7 <sup>+0.05</sup> <sub>-0</sub> | 15.87 <sup>+0.05</sup> <sub>-0</sub> | 22.22 <sup>+0.05</sup> <sub>-0</sub> | 28.60 <sup>+0.05</sup> <sub>-0</sub> | 36.52 <sup>+0.05</sup> <sub>-0</sub> |
|                                                                                                                                                                                                                                                                                                                                             | E  | 2.6 <sup>+0.3</sup> <sub>-0</sub>   | 2.6 <sup>+0.3</sup> <sub>-0</sub>    | 3.3 <sup>+0.3</sup> <sub>-0</sub>    | 3.3 <sup>+0.3</sup> <sub>-0</sub>    | 3.4 <sup>+0.3</sup> <sub>-0</sub>    |
|                                                                                                                                                                                                                                                                                                                                             | F  | 13                                  | 15                                   | 20                                   | 20                                   | 22                                   |
|                                                                                                                                                                                                                                                                                                                                             | G  | 9                                   | 12                                   | 18                                   | 19                                   | 25                                   |
|                                                                                                                                                                                                                                                                                                                                             | G1 | 12                                  | 15                                   | 19                                   | 24                                   | 35                                   |
|                                                                                                                                                                                                                                                                                                                                             | H1 | 14                                  | 18                                   | 26                                   | 25                                   | 31                                   |
|                                                                                                                                                                                                                                                                                                                                             | L1 | 20.5                                | 25.5                                 | 36.5                                 | 36                                   | 46                                   |
|                                                                                                                                                                                                                                                                                                                                             | L2 | 29                                  | 34.5                                 | 48                                   | 49                                   | 59                                   |
|                                                                                                                                                                                                                                                                                                                                             | M  | 1.5                                 | 1.5                                  | -                                    | -                                    | -                                    |
|                                                                                                                                                                                                                                                                                                                                             |    |                                     |                                      |                                      |                                      |                                      |
|                                                                                                                                                                                                                                                                                                                                             |    |                                     |                                      |                                      |                                      |                                      |

| TOOLS<br>(ALUMINIUM/STEEL *)                                                                       | ORDERING CODE |             |             |             |             |
|----------------------------------------------------------------------------------------------------|---------------|-------------|-------------|-------------|-------------|
| DRILL<br>       | Ø G1          | Ø G1        | Ø G1        | Ø G1        | Ø G1        |
| FORM DRILL<br>  | P-CA-08A-2N   | P-CA-10A-2N | P-CA-12A-2N | P-CA-16A-2N | P-CA-20A-2N |
| FORM REAMER<br> | A-CA-08A-2N   | A-CA-10A-2N | A-CA-12A-2N | A-CA-16A-2N | A-CA-20A-2N |
| PLUG TAP<br>    | M-CA-08A      | M-CA-10A    | M-CA-12A    | M-CA-16A    | M-CA-20A    |
| * NOTE: tools only suitable for small series production.                                           |               |             |             |             |             |

# Common cavities - Tools

## 3-way short

1 mm = 0.03937 in

1 in = 25.4 mm

| THREE WAY SHORT                                                                                                                                     |    | CA-08A-3C            | CA-10A-3C            | CA-12A-3C            | CA-16A-3C            | CA-20A-3C            |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|----|----------------------|----------------------|----------------------|----------------------|----------------------|
| <p>General tolerance : <math>\pm 0.3</math> mm</p> <p>Concentricity: <math>\text{0.03}</math></p> <p>Perpendicularity: <math>\text{0.02}</math></p> | A  | 3/4-16 UNF-2B        | 7/8-14 UNF-2B        | 1-1/16 12 UN-2B      | 1-5/16 12 UN-2B      | 1-5/8 12 UN-2B       |
|                                                                                                                                                     | B  | 28                   | 30                   | 35                   | 42                   | 48                   |
|                                                                                                                                                     | C  | $20.6^{+0.1}_{-0}$   | $23.9^{+0.1}_{-0}$   | $29.2^{+0.1}_{-0}$   | $35.5^{+0.1}_{-0}$   | $43.5^{+0.1}_{-0}$   |
|                                                                                                                                                     | D1 | $15.87^{+0.05}_{-0}$ | $19.05^{+0.05}_{-0}$ | $23.80^{+0.05}_{-0}$ | $28.60^{+0.05}_{-0}$ | $36.52^{+0.05}_{-0}$ |
|                                                                                                                                                     | D2 | $14.27^{+0.05}_{-0}$ | $17.47^{+0.05}_{-0}$ | $22.22^{+0.05}_{-0}$ | $25.42^{+0.05}_{-0}$ | $33.35^{+0.05}_{-0}$ |
|                                                                                                                                                     | E  | $2.6^{+0.3}_{-0}$    | $2.6^{+0.3}_{-0}$    | $3.3^{+0.3}_{-0}$    | $3.3^{+0.3}_{-0}$    | $3.4^{+0.3}_{-0}$    |
|                                                                                                                                                     | F  | 12                   | 13                   | 21                   | 16.5                 | 20                   |
|                                                                                                                                                     | G  | 8                    | 14                   | 14                   | 15                   | 28                   |
|                                                                                                                                                     | G1 | 3                    | 4                    | 5                    | 5                    | 7                    |
|                                                                                                                                                     | G2 | 12                   | 15                   | 19                   | 24                   | 30                   |
|                                                                                                                                                     | H1 | 12.5                 | 14                   | 22.5                 | 17.5                 | 20                   |
|                                                                                                                                                     | H2 | 26.5                 | 31.5                 | 40.5                 | 38                   | 50                   |
|                                                                                                                                                     | L1 | 16                   | 18                   | 26.5                 | 22                   | 25.5                 |
|                                                                                                                                                     | L2 | 32                   | 40                   | 49.5                 | 47.5                 | 65.5                 |
|                                                                                                                                                     | L3 | 40                   | 49                   | 60                   | 58                   | 78                   |
|                                                                                                                                                     | M  | -                    | -                    | -                    | 2                    | -                    |
|                                                                                                                                                     | M1 | -                    | -                    | -                    | 2                    | -                    |

| TOOLS<br>(ALUMINIUM/STEEL *) | ORDERING CODE |             |             |             |             |
|------------------------------|---------------|-------------|-------------|-------------|-------------|
| DRILL<br>                    | Ø G1          | Ø G1        | Ø G1        | Ø G1        | Ø G1        |
| FORM DRILL<br>               | P-CA-08A-3N   | P-CA-10A-3N | P-CA-12A-3N | P-CA-16A-3N | P-CA-20A-3N |
| FORM REAMER<br>              | A-CA-08A-3N   | A-CA-10A-3N | A-CA-12A-3N | A-CA-16A-3N | A-CA-20A-3N |
| PLUG TAP<br>                 | M-CA-08A      | M-CA-10A    | M-CA-12A    | M-CA-16A    | M-CA-20A    |

\* NOTE: tools only suitable for small series production.

## Common cavities - Tools

### 3-way

1 mm = 0.03937 in

1 in = 25.4 mm

| THREE WAY                                                                                                                                 |    | CA-08A-3N                            | CA-10A-3N                            | CA-12A-3N                            | CA-16A-3N                            | CA-20A-3N                            |
|-------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| <p>General tolerance : <math>\pm 0.3</math> mm</p> <p>Concentricity: <math>(0.03)</math></p> <p>Perpendicularity: <math>(0.02)</math></p> | A  | 3/4-16 UNF-2B                        | 7/8-14 UNF-2B                        | 1-1/16 12 UN-2B                      | 1-5/16 12 UN-2B                      | 1-5/8 12 UN-2B                       |
|                                                                                                                                           | B  | 28                                   | 30                                   | 35                                   | 42                                   | 54                                   |
|                                                                                                                                           | C  | 20.6 <sup>+0.1</sup> <sub>-0</sub>   | 23.9 <sup>+0.1</sup> <sub>-0</sub>   | 29.2 <sup>+0.1</sup> <sub>-0</sub>   | 35.5 <sup>+0.1</sup> <sub>-0</sub>   | 43.5 <sup>+0.1</sup> <sub>-0</sub>   |
|                                                                                                                                           | D1 | 15.87 <sup>+0.05</sup> <sub>-0</sub> | 17.47 <sup>+0.05</sup> <sub>-0</sub> | 23.80 <sup>+0.05</sup> <sub>-0</sub> | 28.60 <sup>+0.05</sup> <sub>-0</sub> | 36.52 <sup>+0.05</sup> <sub>-0</sub> |
|                                                                                                                                           | D2 | 14.27 <sup>+0.05</sup> <sub>-0</sub> | 15.87 <sup>+0.05</sup> <sub>-0</sub> | 22.22 <sup>+0.05</sup> <sub>-0</sub> | 27.00 <sup>+0.05</sup> <sub>-0</sub> | 33.35 <sup>+0.05</sup> <sub>-0</sub> |
|                                                                                                                                           | E  | 2.6 <sup>+0.3</sup> <sub>-0</sub>    | 2.6 <sup>+0.3</sup> <sub>-0</sub>    | 3.3 <sup>+0.3</sup> <sub>-0</sub>    | 3.3 <sup>+0.3</sup> <sub>-0</sub>    | 3.4 <sup>+0.3</sup> <sub>-0</sub>    |
|                                                                                                                                           | F  | 13                                   | 14                                   | 20                                   | 20                                   | 22                                   |
|                                                                                                                                           | G  | 6                                    | 8                                    | 14                                   | 17                                   | 25                                   |
|                                                                                                                                           | G1 | 12                                   | 15                                   | 19                                   | 24                                   | 30                                   |
|                                                                                                                                           | H1 | * 15                                 | * 18                                 | 28                                   | 25.5                                 | 31                                   |
|                                                                                                                                           | H2 | 29                                   | 34                                   | 53                                   | 54                                   | 72                                   |
|                                                                                                                                           | L1 | 19.5                                 | 23.5                                 | 36.5                                 | 35.5                                 | 46                                   |
|                                                                                                                                           | L2 | 33.5                                 | 39.5                                 | 61.5                                 | 64                                   | 87.5                                 |
|                                                                                                                                           | L3 | 43                                   | 48.5                                 | 73                                   | 75                                   | 100                                  |
|                                                                                                                                           | M  | -                                    | (1.5)                                | -                                    | -                                    | -                                    |
|                                                                                                                                           | M1 | -                                    | -                                    | -                                    | -                                    | -                                    |
|                                                                                                                                           | *  | -                                    | -                                    | -                                    | -                                    | 25.5                                 |

\* : for valve 3/2 scheme 11, cavity CA-08A-3N, consider G1 min. at Ø12mm, see also valve catalog page RE 18324-08

\* : for valve 3/2 scheme 11, cavity CA-10A-3N, consider G1 min. at Ø15mm, see also valve catalog page RE 18324-58

| TOOLS<br>(ALUMINIUM/STEEL *)                             | ORDERING CODE |             |             |             |             |
|----------------------------------------------------------|---------------|-------------|-------------|-------------|-------------|
| <b>DRILL</b><br>                                         | Ø G1          | Ø G1        | Ø G1        | Ø G1        | Ø G1        |
| <b>FORM DRILL</b><br>                                    | P-CA-08A-3N   | P-CA-10A-3N | P-CA-12A-3N | P-CA-16A-3N | P-CA-20A-3N |
| <b>FORM REAMER</b><br>                                   | A-CA-08A-3N   | A-CA-10A-3N | A-CA-12A-3N | A-CA-16A-3N | A-CA-20A-3N |
| <b>PLUG TAP</b><br>                                      | M-CA-08A      | M-CA-10A    | M-CA-12A    | M-CA-16A    | M-CA-20A    |
| * NOTE: tools only suitable for small series production. |               |             |             |             |             |

# Common cavities - Tools

## 4-way

1 mm = 0.03937 in

1 in = 25.4 mm

| FOUR WAY                                                                                                                                                 |    | CA-08A-4N                            | CA-10A-4N                            | CA-12A-4N                            | CA-16A-4N                            | CA-20A-4N                            |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| <p>General tolerance : <math>\pm 0.012</math> (0.3 mm)</p> <p> <math>\text{○ } 0.002</math> (0.03)<br/> <math>\text{┴ } 0.008</math> (0.02)         </p> | A  | 3/4-16 UNF-2B                        | 7/8-14 UNF-2B                        | 1-1/16 12 UN-2B                      | 1-5/16 12 UN-2B                      | 1-5/8 12 UN-2B                       |
|                                                                                                                                                          | B  | 28                                   | 30                                   | 35                                   | 42                                   | 48                                   |
|                                                                                                                                                          | C  | 20.6 <sup>+0.1</sup> <sub>-0</sub>   | 23.9 <sup>+0.1</sup> <sub>-0</sub>   | 29.2 <sup>+0.1</sup> <sub>-0</sub>   | 35.5 <sup>+0.1</sup> <sub>-0</sub>   | 43.5 <sup>+0.1</sup> <sub>-0</sub>   |
|                                                                                                                                                          | D1 | 15.87 <sup>+0.05</sup> <sub>-0</sub> | 19.05 <sup>+0.05</sup> <sub>-0</sub> | 23.80 <sup>+0.05</sup> <sub>-0</sub> | 28.60 <sup>+0.05</sup> <sub>-0</sub> | 36.52 <sup>+0.05</sup> <sub>-0</sub> |
|                                                                                                                                                          | D2 | 14.27 <sup>+0.05</sup> <sub>-0</sub> | 17.47 <sup>+0.05</sup> <sub>-0</sub> | 22.22 <sup>+0.05</sup> <sub>-0</sub> | 27.00 <sup>+0.05</sup> <sub>-0</sub> | 33.35 <sup>+0.05</sup> <sub>-0</sub> |
|                                                                                                                                                          | D3 | 12.70 <sup>+0.05</sup> <sub>-0</sub> | 15.87 <sup>+0.05</sup> <sub>-0</sub> | 20.62 <sup>+0.05</sup> <sub>-0</sub> | 25.42 <sup>+0.05</sup> <sub>-0</sub> | 31.75 <sup>+0.05</sup> <sub>-0</sub> |
|                                                                                                                                                          | E  | 2.6 <sup>+0.3</sup> <sub>-0</sub>    | 2.6 <sup>+0.3</sup> <sub>-0</sub>    | 3.3 <sup>+0.3</sup> <sub>-0</sub>    | 3.3 <sup>+0.3</sup> <sub>-0</sub>    | 3.4 <sup>+0.3</sup> <sub>-0</sub>    |
|                                                                                                                                                          | F  | 13                                   | 15                                   | 19                                   | 20                                   | 22                                   |
|                                                                                                                                                          | G  | 6                                    | 8                                    | 14                                   | 16                                   | 25                                   |
|                                                                                                                                                          | G1 | 12                                   | 15                                   | 19                                   | 24                                   | 30                                   |
|                                                                                                                                                          | H1 | 15                                   | 18                                   | 28                                   | 25                                   | 32                                   |
|                                                                                                                                                          | H2 | 29                                   | 34                                   | 53                                   | 53.5                                 | 72                                   |
|                                                                                                                                                          | H3 | 43                                   | 50                                   | 78                                   | 82                                   | 114                                  |
|                                                                                                                                                          | L1 | 19.5                                 | 23.5                                 | 36.5                                 | 35.5                                 | 46                                   |
|                                                                                                                                                          | L2 | 33.5                                 | 39.5                                 | 61.5                                 | 64                                   | 87                                   |
|                                                                                                                                                          | L3 | 47.5                                 | 55.5                                 | 87.5                                 | 92.5                                 | 128.5                                |
|                                                                                                                                                          | L4 | 56                                   | 64.5                                 | 99                                   | 104                                  | 142                                  |
|                                                                                                                                                          | M  | -                                    | -                                    | -                                    | -                                    | -                                    |
|                                                                                                                                                          | M1 | -                                    | -                                    | -                                    | -                                    | -                                    |
|                                                                                                                                                          | M2 | -                                    | -                                    | -                                    | -                                    | -                                    |

| TOOLS<br>(ALUMINIUM/STEEL *)                             | ORDERING CODE |             |             |             |             |
|----------------------------------------------------------|---------------|-------------|-------------|-------------|-------------|
| <b>DRILL</b><br>                                         | Ø G1          | Ø G1        | Ø G1        | Ø G1        | Ø G1        |
| <b>FORM DRILL</b><br>                                    | P-CA-08A-4N   | P-CA-10A-4N | P-CA-12A-4N | P-CA-16A-4N | P-CA-20A-4N |
| <b>FORM REAMER</b><br>                                   | A-CA-08A-4N   | A-CA-10A-4N | A-CA-12A-4N | A-CA-16A-4N | A-CA-20A-4N |
| <b>PLUG TAP</b><br>                                      | M-CA-08A      | M-CA-10A    | M-CA-12A    | M-CA-16A    | M-CA-20A    |
| * NOTE: tools only suitable for small series production. |               |             |             |             |             |

