

Specification for

# Dimensions of hydraulic connectors and adaptors

ICS 23.100.40

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# Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee MCE/18, *Fluid power systems and components*, upon which the following bodies were represented:

- Association of British Mining Equipment Companies
- British Compressed Air Society
- British Fluid Power Association
- British Hydrodynamics Research Association
- Department of Trade and Industry (National Engineering Laboratory)
- Ministry of Defence
- University of Bath

The following bodies were also represented in the drafting of the standard, through a subcommittee panel:

- British Iron and Steel Producers' Association
- Engineering Equipment and Materials Users' Association

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## Amendments issued since publication

| Amd. No. | Date          | Comments                                                                                                              |
|----------|---------------|-----------------------------------------------------------------------------------------------------------------------|
| 10153    | February 1999 | Indicated by a sideline in the margin                                                                                 |
| C1       | March 2017    | Correction to Table 2: In the 1st column Thread size, 5th row down, $\frac{3}{8}$ has been changed to $\frac{5}{8}$ . |
|          |               |                                                                                                                       |
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## Foreword

This British Standard is published by BSI Standards Limited, under licence from The British Standards Institution.

This revision of BS 5200 has been prepared by Technical Committee MCE/18 and supersedes BS 5200:1986, which is withdrawn. An improved design of “O”-ring seal nipple which is in general use in the fluid power industry is now incorporated. Male thread undercut details have also been added to suit bonded washer type seals. Maximum working pressure specifications have been revised so as to be consistent with current hose standards.

Table 2, Figure 1 and Figure 3 have been corrected by Amendment No. 1.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

**Compliance with a British Standard cannot confer immunity from legal obligations.**

### Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 18, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

## 1 Scope

This British Standard specifies the basic dimensions necessary to ensure interchangeability of hydraulic connectors and adaptors for connecting rigid and flexible tubing to hydraulic fluid power system components.

Fourteen styles of adaptor and five styles of hose fitting are specified. Adaptors and hose fittings have been allocated style designation letters and female end fittings type designation letters, according to their shape and dimensions.

For female ends, a conventional plain nipple is specified for face sealing and a nipple with a groove for "O"-ring sealing. The appropriate "O"-rings for use with the fittings and adaptors are also specified.

A spherical seating is specified as an alternative to the female conical seating, provided that all other limiting dimensions are maintained.

This standard specifies maximum working pressures but does not specify materials, production processes or dimensions that are not related to interchangeability.

NOTE 1 Hose fitting styles B, D, E and G may be made from swept elbow bends as specified in BS 5327.

NOTE 2 It is the responsibility of the designer to ensure that materials and production processes are compatible with the fluids to be encountered in service.

## 2 References

### 2.1 Normative references

This British Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are made at the appropriate places in the text and the cited publications are listed on the inside back cover. For dated references, only the edition cited applies; any subsequent amendments to or revisions of the cited publication apply to this British Standard only when incorporated in the reference by amendment or revision. For undated references, the latest edition of the cited publication applies, together with any amendments.

### 2.2 Informative references

This British Standard refers to other publications that provide information or guidance. Editions of these publications current at the time of issue of this standard are listed on the inside back cover, but reference should be made to the latest editions.

## 3 Dimensions

The dimensions and details of the end interfaces and the maximum envelope dimensions for hose fittings and adaptors shall be in accordance with the tables and figures given in Table 1.

NOTE The dimensions quoted in these tables apply after any surface treatment.

## 4 Screw threads

All screw threads shall be in accordance with BS 2779 and all external threads shall be in accordance with class A tolerances of that standard.

## 5 Thread undercuts

All thread undercuts for male adaptors shall be in accordance with Form B of BS 1936-1:1952 except those for "O"-rings which shall be in accordance with BS 5380.

NOTE Where the male adaptor is used as a stud fitting with bonded washer type seals the undercut should be in accordance with Figure 23 and Table 11.

## 6 Sealing surfaces

All sealing surfaces shall be smooth and shall have the surface texture specified in Figure 1, Figure 2, Figure 3 and Figure 23, when measured in accordance with BS 1134-1.

## 7 Maximum working pressure

Every fitting and adaptor shall be capable of withstanding, without deformation, the pressure specified in Table 10.

## 8 Marking

8.1 Each fitting or adaptor shall be permanently marked with either:

a) the manufacturer's name or trademark and the designations listed 1) to 4)<sup>1)</sup>:

1) the number of this British Standard, i.e. BS 5200;

2) the relevant style letter of the hose fitting or adaptor (see Table 1);

3) the relevant type letter of female ends:

i) type C, with conical sealing nipple (see Figure 2 and Table 2); or

ii) type O, with "O"-ring sealing nipple (see Figure 1 and Table 2); or

iii) type S, with spherical sealing nipple (see Figure 2 and Table 2);

<sup>1)</sup> Marking BS 5200:1996 on or relation to a product represents a manufacturer's declaration of conformity, i.e. a claim by or on behalf of the manufacturer that the product meets the requirements of the standard. The accuracy of the claim is solely the claimant's responsibility. Such a declaration is not to be confused with third party certification of conformity, which may also be desirable.

- a) BS 5200-AO-G ½ to identify a G ½ threaded straight hose fitting with an “O”-ring sealing nipple, for 12.5 mm hose;
- b) BS 5200-LC-G ¾ to identify a 90° male-female G ¾ threaded adaptor with a conical sealing nipple;
- c) BS 5200-R-G 2 to identify a 135° male-male G 2 threaded “O”-ring adjustable adaptor.

The port dimensions of “O”-ring sealing shall be in accordance with BS 5380.



Table 1 — Summary of tables of dimensions and related figures

| Description of hose fitting or adaptor     | End details                     |                                | Complete hose fitting or adaptor | Style (and type of end <sup>a</sup> ) |
|--------------------------------------------|---------------------------------|--------------------------------|----------------------------------|---------------------------------------|
|                                            | End no. 1                       | End no. 2                      |                                  |                                       |
| Hose fittings straight                     | Figure 1 and Figure 2, Table 2  | —                              | Figure 4, Table 3                | A <sup>a</sup>                        |
| 90° tubular elbow                          | Figure 1 and Figure 2, Table 2  | —                              | Figure 5, Table 3                | B <sup>a</sup>                        |
| 135° tubular elbow                         | Figure 1 and Figure 2, Table 2  | —                              | Figure 6, Table 3                | D <sup>a</sup>                        |
| 90° block elbow                            | Figure 1 and Figure 2, Table 2  | —                              | Figure 7, Table 3                | E <sup>a</sup>                        |
| 135° block elbow                           | Figure 1 and Figure 2, Table 2  | —                              | Figure 8, Table 3                | G <sup>a</sup>                        |
| Male-male adaptors straight                | Figure 3, Table 2               | Figure 3, Table 2              | Figure 9, Table 4                | H                                     |
| 90°                                        | Figure 3, Table 2               | Figure 3, Table 2              | Figure 10, Table 4               | I                                     |
| 135°                                       | Figure 3, Table 2               | Figure 3, Table 2              | Figure 11, Table 4               | J                                     |
| tee                                        | Figure 3, Table 2               | Figure 3, Table 2              | Figure 12, Table 4               | K                                     |
| Male-female adaptors straight              | Figure 3, Table 2               | Figure 1 and Figure 2, Table 2 | Figure 13, Table 5               | L <sup>a</sup>                        |
| 90°                                        | Figure 3, Table 2               | Figure 1 and Figure 2, Table 2 | Figure 14, Table 5               | N <sup>a</sup>                        |
| 135°                                       | Figure 3, Table 2               | Figure 1 and Figure 2, Table 2 | Figure 15, Table 5               | p <sup>a</sup>                        |
| Straight “O”-ring adaptors male-male       | Figures 1 and 2 of BS 5380:1984 | Figure 3, Table 2              | Figure 16, Table 6               | Q                                     |
| male-female                                | Figures 1 and 2 of BS 5380:1984 | Figure 1 and Figure 2, Table 2 | Figure 17, Table 6               | R <sup>a</sup>                        |
| “O”-ring adjustable adaptors 90° male-male | Figure 3, Table 2               | Figure 3 of BS 5380:1984       | Figure 18, Table 7               | T                                     |
| 135° male-male                             | Figure 3, Table 2               | Figure 3 of BS 5380:1984       | Figure 19, Table 7               | U                                     |
| 90° male-female                            | Figure 3 of BS 5380:1984        | Figure 1 and Figure 2, Table 2 | Figure 20, Table 8               | V <sup>a</sup>                        |
| 135° male-female                           | Figure 3 of BS 5380:1984        | Figure 1 and Figure 2, Table 2 | Figure 21, Table 8               | W <sup>a</sup>                        |
| Bulkhead adaptor male-male                 | Figure 3, Table 2               | Figure 3, Table 2 and Table 9  | Figure 22, Table 9               | X                                     |

<sup>a</sup> Type letter as listed in 8.1 a).

