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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 2091

HYDRAULIC CYLINDERS

INTERNAL DIAMETERS AND PISTON ROD DIAMETERS

METRIC SERIES

1st EDITION

May 1971

For each individual country the only valid standard is the national standard of that country.

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BRIEF HISTORY

The ISO Recommendation R 2091, *Hydraulic cylinders – Internal diameters and piston rod diameters – Metric series*, was drawn up by Technical Committee ISO/TC 39, *Machine tools*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question led to the adoption of Draft ISO Recommendation No. 2091, which was circulated to all the ISO Member Bodies for enquiry in July 1970. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Belgium	Ireland	Spain
Czechoslovakia	Japan	Sweden
France	Korea, Rep. of	Switzerland
Germany	New Zealand	Thailand
Greece	Poland	U.A.R.
Hungary	Romania	United Kingdom
India	South Africa, Rep. of	U.S.S.R.

The following Member Body opposed the approval of the Draft :

U.S.A.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommandation | R 2091 | May 1971

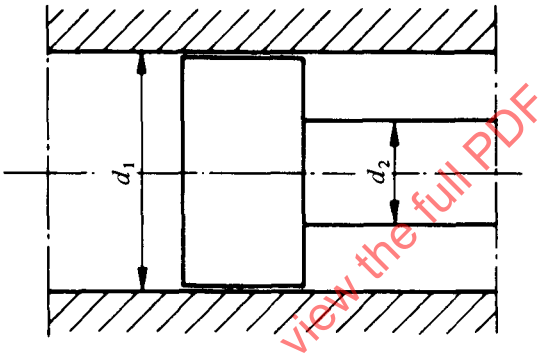
HYDRAULIC CYLINDERS

INTERNAL DIAMETERS AND PISTON ROD DIAMETERS

METRIC SERIES

1. SCOPE

This ISO Recommendation gives the standard range of internal diameters, d_1, for hydraulic cylinders and the standard range of piston rod diameters, d_2.



FIGURE

For each pair of diameters (d_1, d_2) there is a corresponding ratio φ between the useful areas F_1 and F_2.

$$F_1 = \frac{\pi}{4} d_1^2 \qquad F_2 = \frac{\pi}{4}(d_1^2 - d_2^2)$$

The Table in the Annex gives, for guidance, for each value of d_1 those standard values of d_2 that give ratios φ approximately equal to one of the following preferred numbers :

1.06 – 1.12 – 1.25 – 1.4 – 1.6 – 2 – 2.5 – 5

Moreover, for each pair (d_1, d_2) the Table gives calculated values of F_1 and F_2 and the corresponding effective value of φ.

2. INTERNAL DIAMETERS d_1*

Dimensions in millimetres

d_1	25	32	40	50	63	80	100	125	160	200	220	250	280	320	360	400

3. PISTON ROD DIAMETERS d_2*

Dimensions in millimetres

d_2	12	14	16	18	20	22	25	28	32	36	40	45	50	56	63
	70	80	90	100	110	125	140	160	180	200	220	250	280	320	360

* An extension upwards of the diameter ranges may, if required, be made using the R 20 series of preferred numbers. An extension downwards may be made under the same conditions using the values 12, 16 and 20 for d_1 and 6, 8 and 10 for d_2.