# INTERNATIONAL STANDARD 1050

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

# Continuous mechanical handling equipment for loose bulk materials — Screw conveyors

*Engins de manutention continue pour produits en vrac — Transporteurs à vis*

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**Descriptors** : handling equipment, continuous handling, bulk products, conveyors, screw conveyors, dimensions.



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## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.



Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these doucments are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 101 has reviewed ISO Recommendation R 1050 and found it technically suitable for transformation. International Standard ISO 1050 therefore replaces ISO Recommendation R 1050-1969 to which it is technically identical.



ISO Recommendation R 1050 was approved by the Member Bodies of the following countries :

| | | |
|---|---|---|
| Belgium | Germany | Poland |
| Brazil | Greece | South Africa, Rep. of |
| Canada | India | Sweden |
| Chile | Israel | Switzerland |
| Czechoslovakia | Italy | Turkey |
| Egypt, Arab Rep. of | Japan | United Kingdom |
| Finland | Korea, Rep. of | U.S.S.R. |
| France | Netherlands | Yugoslavia |

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

U.S.A.

No Member Body disapproved the transformation of ISO/R 1050 into an International Standard.



Printed in Switzerland

# Continuous mechanical handling equipment for loose bulk materials — Screw conveyors

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard lays down the recommended values of the main dimensions of the screw conveyors' elements.

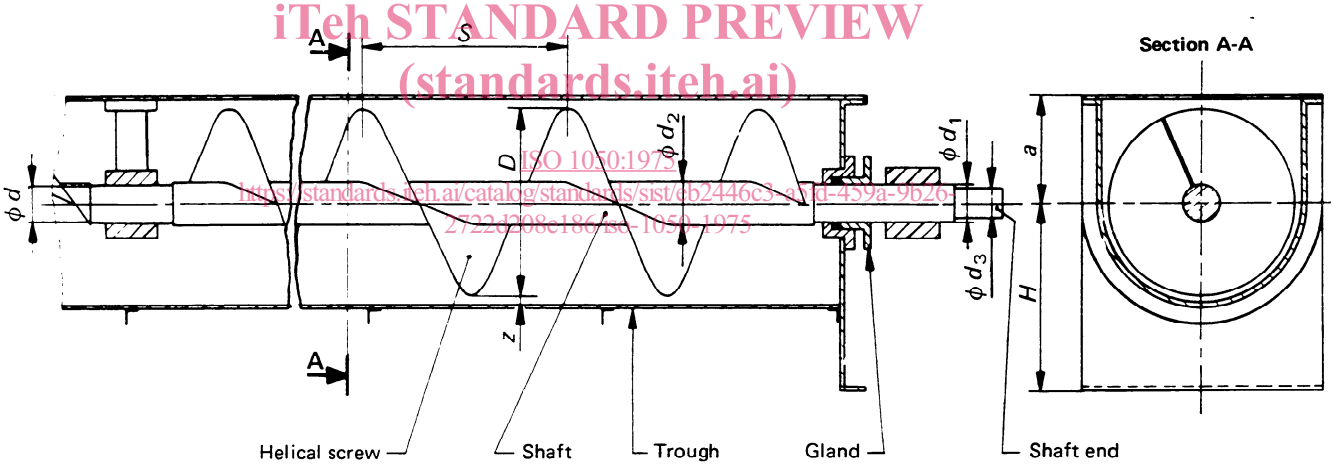
## 2 REFERENCES

ISO 496, *Driving and driven machines — Shaft heights.*

ISO/R 775, *Cylindrical and 1/10 conical shaft ends.*

## 3 DEFINITIONS






### 3.1 Helical screw

**3.1.1 nominal diameter** : The outside diameter, $D$, of the helical screw.

**3.1.2 pitch** : The pitch, $S$, of the helical screw.

### 3.2 Shaft

**3.2.1 constitution** : The shaft of the helical screw may be made either solid ($\phi d_1$), or partly solid ($\phi d_1$) and partly tubular ($\phi d_2$).

**3.2.2 shaft end** : The driven end of the shaft ($\phi d_3$).

### 3.3 Trough

**3.3.1 shaft height** : The height $H$ of the shaft centre line above the foot of the trough support.

**3.3.2 height above shaft** : The distance $a$ between the shaft centre line and the top of the trough.

**3.3.3 clearance** : The radial clearance $z$ between the helical screw and the interior of the cylindrical part of the trough.

## 4 DIMENSIONS

The values of main dimensions of screw conveyors are given in millimetres and taken from series of preferred numbers.[1)]

### 4.1 Helical screw

#### 4.1.1 *Nominal diameters, D*

The following diameters are taken from the R 10 series of preferred numbers.[1)]

| $D$ | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1 000 | 1 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

#### 4.1.2 *Pitch, S*

**4.1.2.1** The following pitch dimensions are taken from the R 10 series of preferred numbers[1)] up to pitch 315 mm and from the R 20 series of preferred numbers for larger pitches.[1)]

| $S$ | 80 | 100 | 125 | 160 | 200 | 250 | 315 | 355 | 400 | 450 | 500 | 560 | 630 | 800 | 1 000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

**4.1.2.2** The screw pitch should be chosen by the manufacturer.

### 4.2 Shaft

#### 4.2.1 *Solid parts — Diameters $d_1$*



Recommended values :

| $d_1$ | 25 | 30 | 35 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|



#### 4.2.2 *Tubular parts — Diameters $d_2$*

The following values are taken from ISO 64, *Steel tubes — Outside diameters.*

| $d_2$ | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | 33,7 | 42,4 or 44,5 | 48,3 | 57 | 63,5 | 76,1 | 88,9 | 108 | 133 | 159 | 193,7 |
| | in | 1 11/32 | 1 11/16 or 1 3/4 | 1 29/32 | 2 1/4 | 2 1/2 | 3 | 3 1/2 | 4 1/4 | 5 1/4 | 6 1/4 | 7 5/8 |

#### 4.2.3 *Shaft end*

The shaft end shall conform to ISO/R 775.

### 4.3 Trough

#### 4.3.1 *Shaft height, H*

The height shall conform to ISO 496.

#### 4.3.2 *Height above shaft, a*

This height, taken from the R 20 series of preferred numbers [1)] (except for $a$ = 75 mm), is related to the nominal diameter $D$ (see 4.1.1), as indicated below.

| $D$ | 100 | 125 | 160 | 200 | 250 | 315 | 400 | 500 | 630 | 800 | 1 000 | 1 250 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $a$ | 63 | 75 | 90 | 112 | 140 | 180 | 224 | 280 | 355 | 450 | 560 | 710 |

#### 4.3.3 *Clearance, z*

The clearance $z$ shall be determined by the manufacturer in accordance with the characteristics of the material handled and the working conditions.

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1) See ISO 3, *Preferred numbers — Series of preferred numbers.*