



## Hydraulic Nut HYDNUT

HYDNUT..-E, HYDNUT..-E-INCH and HYDNUT..-HEAVY



# Foreword

## Application

Hydraulic nuts are used to press parts with a tapered bore onto a tapered seat. They are mainly used if the drive-up forces required cannot be applied using other accessories, e.g. shaft nuts or pressure screws.

Hydraulic nuts HYDNUT..-E and HYDNUT..-E-INCH are used mainly for the mounting of rolling bearings with a tapered bore. The rolling bearings can be seated directly on a tapered shaft, on an adapter sleeve or on a withdrawal sleeve. If the bearing is fitted using a withdrawal sleeve or an adapter sleeve, the hydraulic nut can also be used for removal.

A hydraulic nut HYDNUT..-HEAVY is suitable for the assembly of press fits that require high or very high drive-up forces. These include ship propellers and rudder blades, shaft couplings and toothed gears.

## New features

A number of new features have been introduced across all series and others exclusively for hydraulic nuts HYDNUT..-E and HYDNUT..-E-INCH.

All hydraulic nuts now have a red O-ring which displays the maximum stroke. The serial number on the press ring and annular piston enables clear identification of parts after disassembly, for example. In addition to the serial number, the markings on the press ring also indicate the maximum pressure and the available thread (HYDNUT..-E) or the inside diameter (HYDNUT..-HEAVY).

Hydraulic nuts HYDNUT..-E and HYDNUT..-E-INCH have additional characteristics. It is very easy to measure the displacement of the component to be fitted, as the press ring features a bore for a dial gauge and the annular piston has an attachment on which the measurement sensor can be placed. The annular piston is easier to remove, such as when replacing seals. This is due to a change in the shape of the annular piston. Each hydraulic nut HYDNUT..-E and HYDNUT..-E-INCH is also equipped with dismantling screws.

Overview of the most important changes:

- red O-ring
- marking
- bore for dial gauge with HYDNUT..-E, HYDNUT..-E-INCH
- dismantling screws for annular piston with HYDNUT..-E, HYDNUT..-E-INCH



# Hydraulic nuts HYDNUT

	Page
<b>Product overview</b>	Hydraulic nuts HYDNUT ..... 4
<b>Features</b>	..... 5
	Special designs ..... 6
	Pressure ..... 6
	Stroke ..... 6
	Marking ..... 7
	Hydraulic nuts with thread ..... 8
	Hydraulic nuts without thread ..... 9
<b>Design and safety guidelines</b>	Fitting ..... 10
	Fitting by means of hydraulic nuts with thread ..... 10
	Fitting by means of hydraulic nuts without thread ..... 11
	Removal by means of hydraulic nuts with thread ..... 12
	Other components ..... 12
	Mounting methods ..... 13
	Reduction in radial internal clearance ..... 15
<b>Ordering examples</b>	..... 22
<b>Ordering numbers</b>	..... 23
<b>Dimension tables</b>	Hydraulic nut, metric thread ..... 30
	Hydraulic nut, trapezoidal thread ..... 32
	Hydraulic nut, threads in inch sizes ..... 38
	Hydraulic nut, no thread, reinforced ..... 42

# Product overview Hydraulic nuts HYDNU T

## Hydraulic nuts

With metric or trapezoidal thread  
With inch thread

HYDNU T..-E



HYDNU T..-E-INCH



Reinforced, without thread

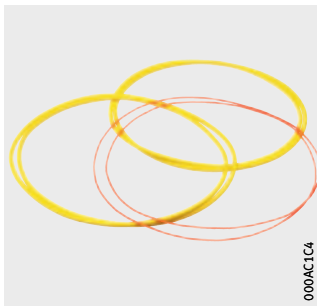
HYDNU T..-HEAVY



## Replacement parts

Replacement seals and red O-ring

HYDNU T..SEAL,  
HYDNU T..-HEAVY.SEAL



## Accessories

Digital dial gauge  
Analogue dial gauge

HYDNU T.GAUGE-DIGITAL



HYDNU T.GAUGE-ANALOG



# Hydraulic nuts HYDNUT

## Features

A hydraulic nut HYDNUT consists of a steel press ring within which a steel annular piston can move, *Figure 1* and table. The annular piston has two grooves for sealing rings and a flat groove for the red O-ring, which indicates the maximum stroke. Between the press ring and annular piston is a pressure chamber filled with hydraulic oil. This is sealed with two seals.

- ① Press ring
- ② Annular piston
- ③ Sealing ring, PVC
- ④ Red O-ring

*Figure 1*  
Hydraulic nut HYDNUT..-E,  
HYDNUT..-E-INCH



## Hydraulic nuts HYDNUT

The inner cylindrical surface of the press ring is available with a metric fine pitch thread, a trapezoidal thread or an inch size thread. Reinforced hydraulic nuts without a thread can also be supplied, see table.

### Available hydraulic nuts

Designation	Design	Application
HYDNUT50-E to HYDNUT200-E	With metric fine pitch thread to DIN 13	Standardised adapter and withdrawal sleeves with metric dimensions, shaft journal with metric thread
HYDNUT205-E to HYDNUT1180-E	With trapezoidal thread to DIN 103	
HYDNUT50-E-INCH to HYDNUT950-E-INCH	With inch size thread to ABMA "Standards for Mounting Accessories, Section 8, Locknut Series N-00"	Shaft journal or sleeves with inch thread
HYDNUT100-HEAVY to HYDNUT900-HEAVY	Reinforced design without thread	For high mounting forces, for example in shipbuilding

### Special designs

Custom solutions can be produced on request, such as hydraulic nuts with a different thread diameter or a larger piston surface.

### Pressure

The maximum permissible pressure is between 300 bar and 700 bar and depends on the size of the hydraulic nut. The maximum pressure is specified on the press ring, see dimension tables.

### Stroke

The maximum stroke, see dimension tables, is designed such that the corresponding rolling bearings or other components with a tapered bore can be fitted in a single operation.



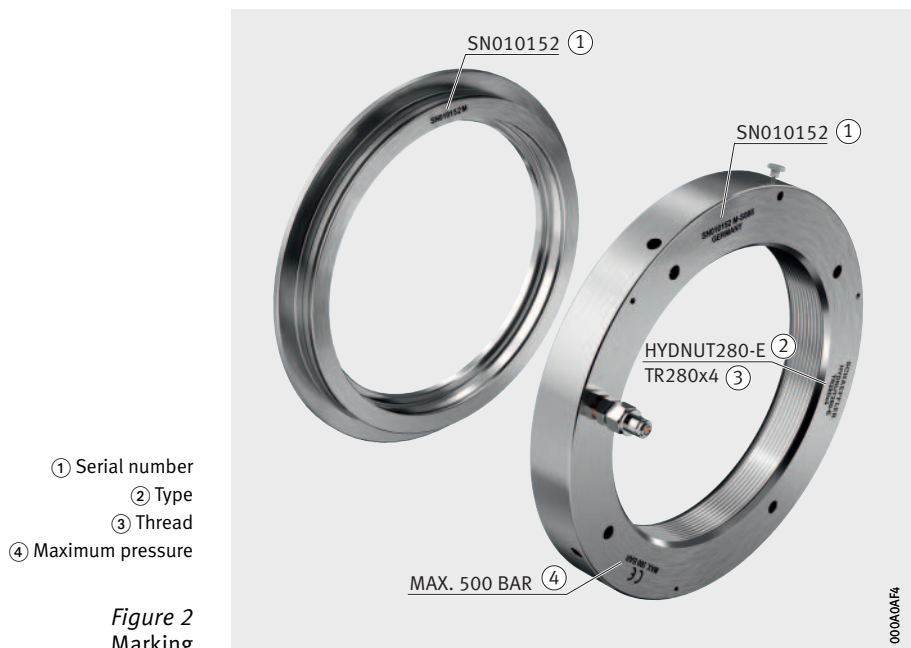
## Marking

The press ring and annular piston are marked with a laser or pin marking system, *Figure 2*. For clear assignment, both components are provided with the same serial number.

The following information is also displayed on the press ring:

- type
- thread (HYDNUT..-E)
- diameter (HYDNUT..-HEAVY)
- maximum pressure

Before fitting, the type and the thread or diameter details can be used to check whether the correct hydraulic nut has been selected. The maximum pressure is specified directly on the press ring, and the user can refer to this at any time to check at which maximum pressure the pressure generation device can be operated.



# Hydraulic nuts HYDNUT

## Hydraulic nuts with thread

The inner cylindrical surface of the press ring is available with a metric fine pitch thread, a trapezoidal thread or an inch size thread, *Figure 3*. A threaded hole G<sup>1/4"</sup> is provided on the end face. A threaded hole G<sup>1/4"</sup> is also located on the outer cylindrical surface. A valve nipple is screwed into one of the threaded holes and connected to the pressure generation device. The screw plug is screwed into the other threaded hole.

- ① Thread on inner cylindrical surface
- ② Threaded hole G<sup>1/4"</sup>
- ③ Handling hole



*Figure 3*  
Fastening and connection

Handling holes are always available in pairs, one in the end face and the other on the outer cylindrical surface. The hand lever included in the delivery is inserted into a bore to turn the hydraulic nut. The number and position depend on the size of the hydraulic nut used, see table.

### Handling holes

Designation		Pairs of holes	
		Number	Diameter mm
from	to		
HYDNUT50-E	HYDNUT190-E	2	10
HYDNUT50-E-INCH	HYDNUT190-E-INCH	2	10
HYDNUT200-E	HYDNUT395-E	4	12
HYDNUT200-E-INCH	HYDNUT380-E-INCH	4	12
HYDNUT400-E	HYDNUT1180-E	6	16
HYDNUT400-E-INCH	HYDNUT950-E-INCH	6	16

## Hydraulic nuts without thread

The inside diameter of the reinforced versions (HYDNUT-HEAVY) is toleranced to H7 and has no thread, but a smooth surface. Hydraulic nuts without a thread are pushed onto the seating surface. They have two radial threaded holes G $\frac{1}{4}$ " in the outer cylindrical surface, *Figure 4*. The threaded holes are offset by 180°. At the time of delivery, a valve nipple is screwed into one radial threaded hole G $\frac{1}{4}$ ". The second threaded hole G $\frac{1}{4}$ " is provided with a screw plug.



① Threaded hole G $\frac{1}{4}$ "

*Figure 4*  
Fastening and connection

# Hydraulic nuts HYDNUT

## Design and safety guidelines

### Fitting

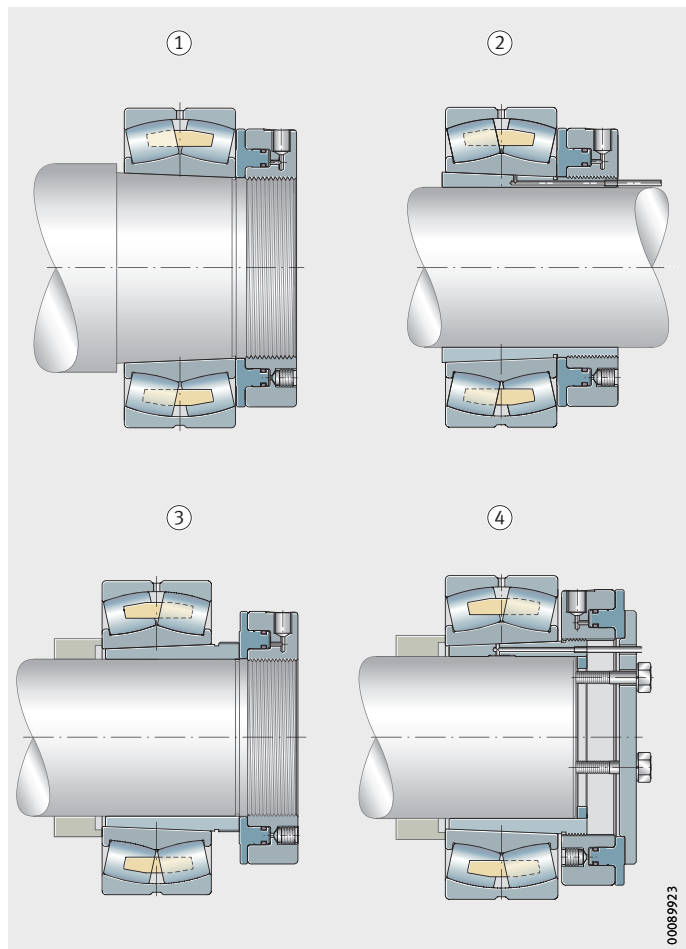
In the simplest case, the component to be fitted is slid onto the tapered shaft in a dry state. In order to reduce the friction between the shaft and the component to be fitted, the hydraulic method can be used. With this method, an additional pressure generation device is used to press hydraulic oil between the fit surfaces, see MH 1, Mounting Handbook.

### Fitting by means of hydraulic nuts with thread

When fitting rolling bearings, the end face of the annular piston is pushed onto the end face of the inner bearing ring, the withdrawal sleeve or the mounting plate, *Figure 5*.

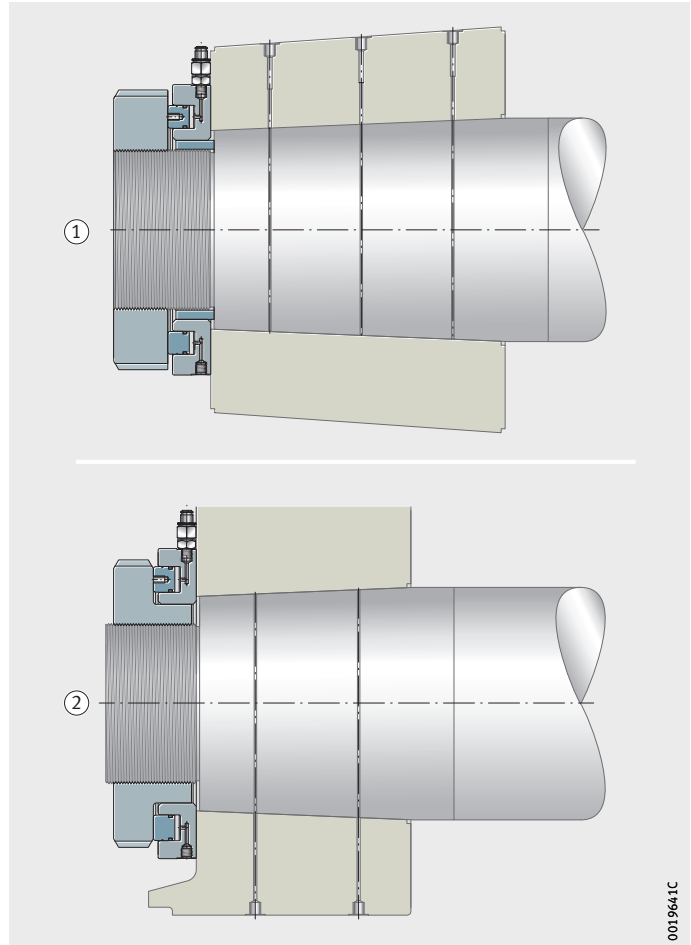
- ① Mounting on tapered shaft
- ② Mounting on adapter sleeve, hydraulic method
- ③ Mounting on withdrawal sleeve
- ④ Mounting on withdrawal sleeve, hydraulic method

*Figure 5*  
Fitting by means of HYDNUT...-E, HYDNUT...-E-INCH



## Fitting by means of hydraulic nuts without thread

A hydraulic nut HYDNUT..HEAVY is used when high drive-up forces are required. Examples in machine building include the joining of gears, drive wheels and couplings. In shipbuilding, typical tasks include fitting the ship's propeller on the propeller shaft and the rudder blade on the rudder shaft, *Figure 6*.



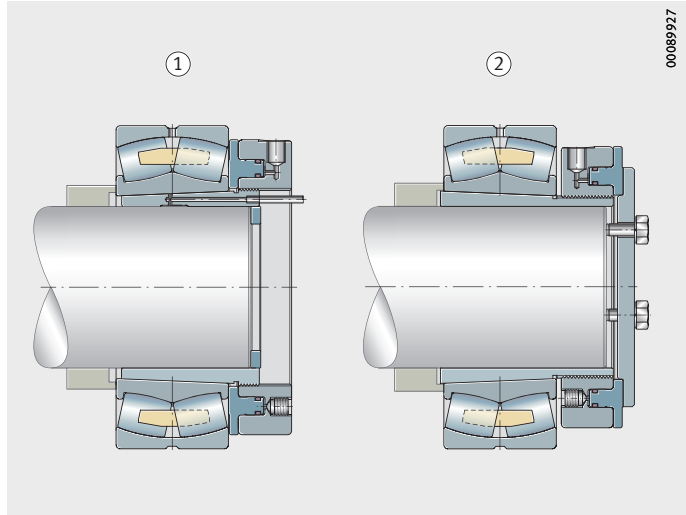
# Hydraulic nuts HYDNUT

## Removal by means of hydraulic nuts with thread

A rolling bearing can be removed from an adapter sleeve or withdrawal sleeve by means of a hydraulic nut HYDNUT...-E or HYDNUT...-E-INCH, *Figure 7*.

- ① Removal with withdrawal sleeve, hydraulic method
- ② Removal with adapter sleeve, mounting plate, dry

*Figure 7*  
Removal by means of HYDNUT...-E, HYDNUT...-E-INCH

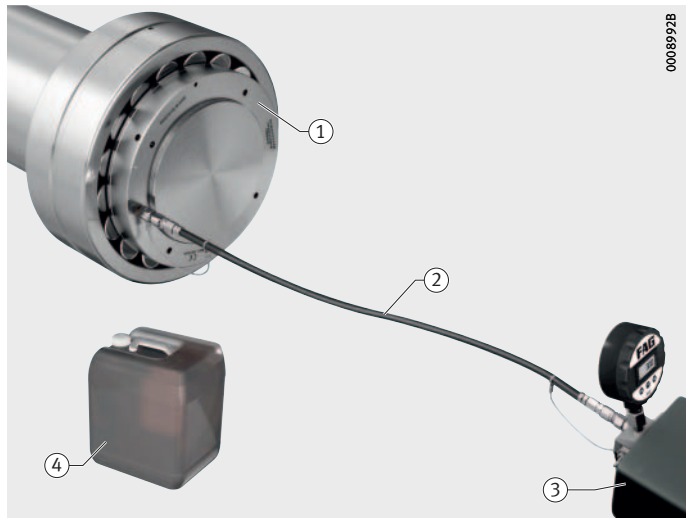


## Other components

In addition to the hydraulic nut, a hydraulic hose and a pressure generation device filled with hydraulic oil are required for operation, *Figure 8*.

- ① Hydraulic nut
- ② Hydraulic hose
- ③ Pressure generation device
- ④ Hydraulic oil

*Figure 8*  
Equipment



### Fitting method

Bearings with a tapered bore are fitted either directly on the tapered shaft by means of an adapter sleeve or withdrawal sleeve on the cylindrical shaft. The internal clearance is set either by measurement of the axial drive-up distance using a dial gauge, or by measuring the reduction in radial internal clearance by conventional means using feeler gauges.

### Mounting Manager Software

The Mounting Manager program provides assistance with selecting the correct mounting of bearings and offers the following options:

- It shows various mechanical and hydraulic mounting methods.
- It calculates the data required for mounting in relation to reduction in radial internal clearance, drive-up distance and start pressure.
- It gives advice on mounting.
- It generates a list of the accessories and tools required.

### Additional information

The Mounting Manager program is available online at <https://mountingmanager-cae.schaeffler.com/app/>

### Measurement of the axial drive-up distance

The Mounting Manager is used to determine the pressure for reaching the start position. The bearing is placed in its start position on the tapered bearing seat using a hydraulic nut. The start pressure, which is defined for each bearing, is checked using a digital manometer on the pressure generation device. A dial gauge is fitted and the pressure is increased until the dial gauge displays the required displacement, *Figure 9*.



*Figure 9*  
Measuring  
the axial drive-up distance

## Hydraulic nuts HYDNUT

<b>Advantages</b>	The advantages of mounting by measuring based on the displacement are the simplified installation, increased safety and accuracy, and the added ability to install sealed rolling bearings correctly.
Simplified installation	To measure the internal clearance using feeler gauges, sufficient space must be available for the feeler gauge and the operator's hand. When using a dial gauge, even the most restricted spaces are no longer a problem.
Safety and accuracy	Measuring the internal clearance correctly using feeler gauges requires a great deal of experience. Measuring the displacement with a dial gauge almost completely eradicates the risk of in correct measurement.
Sealed bearings	The seal prevents the use of feeler gauges for measurement of the radial internal clearance. In some types of rolling bearings, the seal can be removed to measure the radial internal clearance. However, this can cause contamination of the grease and damage to the seal, both of which reduce the service life of the bearing considerably.
<b>Measurement of radial internal clearance</b>	The existing radial internal clearance is measured before fitting, <i>Figure 10</i> . Measurement is carried out using a feeler gauge.



*Figure 10*  
Measuring  
the radial internal clearance



## Reduction in radial internal clearance

When the bearing is pushed onto the tapered seat, the inner ring is expanded and the radial internal clearance is thereby reduced. This reduction in radial internal clearance can be used as a measure of the tight fit of the bearing, *Figure 11* and tables from page 16. It is measured by means of a feeler gauge.



*Figure 11*  
Measuring  
reduced radial internal clearance

# Hydraulic nuts HYDNUT

## Reduction in radial internal clearance of cylindrical roller bearings with tapered bore

Nominal bearing bore diameter		Radial internal clearance before mounting					
		Internal clearance group					
d mm		Group N		Group 3		Group 4	
		mm	mm	mm	mm	mm	mm
over	up to	min.	max.	min.	max.	min.	max.
24	30	0,035	0,06	0,045	0,07	0,055	0,08
30	40	0,04	0,065	0,055	0,08	0,07	0,095
40	50	0,045	0,075	0,06	0,09	0,075	0,105
50	65	0,05	0,08	0,07	0,1	0,09	0,12
65	80	0,06	0,095	0,085	0,12	0,11	0,145
80	100	0,07	0,105	0,095	0,13	0,12	0,155
100	120	0,09	0,13	0,115	0,155	0,14	0,18
120	140	0,1	0,145	0,13	0,175	0,16	0,205
140	160	0,11	0,16	0,145	0,195	0,18	0,23
160	180	0,125	0,175	0,16	0,21	0,195	0,245
180	200	0,14	0,195	0,18	0,235	0,22	0,275
200	225	0,155	0,215	0,2	0,26	0,245	0,305
225	250	0,17	0,235	0,22	0,285	0,27	0,335
250	280	0,185	0,255	0,24	0,31	0,295	0,365
280	315	0,205	0,28	0,265	0,34	0,325	0,4
315	355	0,225	0,305	0,29	0,37	0,355	0,435
355	400	0,255	0,345	0,33	0,42	0,405	0,495
400	450	0,285	0,385	0,37	0,47	0,455	0,555
450	500	0,315	0,425	0,41	0,52	0,505	0,615
500	560	0,35	0,47	0,455	0,575	0,56	0,68
560	630	0,38	0,5	0,5	0,62	0,62	0,74
630	710	0,435	0,575	0,565	0,705	0,695	0,835
710	800	0,485	0,645	0,63	0,79	0,775	0,935
800	900	0,54	0,71	0,7	0,87	0,86	1,03
900	1 000	0,6	0,79	0,78	0,97	0,96	1,15
1 000	1 120	0,665	0,875	0,865	1,075	1,065	1,275
1 120	1 250	0,73	0,97	0,96	1,2	1,2	1,44
1 250	1 400	0,81	1,07	1,07	1,33	1,33	1,59

<sup>1)</sup> Applies only to solid steel shafts and hollow shafts with a bore no larger than half the shaft diameter.

Note: Bearings with a radial internal clearance before fitting in the upper half of the tolerance range are fitted using the larger value for the reduction in radial internal clearance or the axial drive-up distance, while bearings in the lower half of the tolerance range are fitted using the smaller value for the reduction in radial internal clearance or the axial drive-up distance.

<sup>2)</sup> The actual value of the radial internal clearance must not be smaller than the control value. In the case of bearings with a small diameter, this may be difficult to determine.

Reduction in radial internal clearance <sup>1)</sup>		Drive-up distance on taper 1:12 <sup>1)</sup>				Control value for radial internal clearance after mounting <sup>2)</sup>		
		Shaft mm		Sleeve mm		Group N mm	Group 3 mm	Group 4 mm
		min.	max.	min.	max.	min.	min.	min.
0,015	0,02	0,3	0,35	0,3	0,4	0,02	0,025	0,035
0,02	0,025	0,35	0,4	0,35	0,45	0,02	0,025	0,04
0,025	0,03	0,4	0,45	0,45	0,5	0,02	0,03	0,045
0,03	0,035	0,45	0,55	0,5	0,65	0,02	0,035	0,05
0,035	0,04	0,55	0,6	0,65	0,7	0,025	0,04	0,07
0,04	0,045	0,6	0,7	0,65	0,8	0,03	0,05	0,075
0,045	0,055	0,7	0,85	0,8	0,95	0,045	0,065	0,085
0,055	0,065	0,85	1	0,95	1,1	0,045	0,07	0,095
0,06	0,075	0,9	1,2	1,1	1,3	0,05	0,075	0,105
0,065	0,085	1	1,3	1,3	1,5	0,06	0,08	0,11
0,075	0,095	1,2	1,5	1,4	1,7	0,065	0,09	0,125
0,085	0,105	1,3	1,6	1,6	1,8	0,07	0,1	0,14
0,095	0,115	1,5	1,8	1,7	2	0,075	0,105	0,155
0,105	0,125	1,6	2	1,9	2,3	0,08	0,125	0,17
0,115	0,14	1,8	2,2	2,2	2,4	0,09	0,13	0,185
0,13	0,16	2	2,5	2,5	2,7	0,095	0,14	0,195
0,14	0,17	2,2	2,6	2,6	2,9	0,115	0,165	0,235
0,15	0,185	2,3	2,8	2,8	3,1	0,135	0,19	0,27
0,16	0,195	2,5	3	3,1	3,4	0,155	0,215	0,31
0,17	0,215	2,7	3,4	3,5	3,8	0,18	0,24	0,345
0,185	0,24	2,9	3,7	3,6	4,2	0,195	0,26	0,38
0,2	0,26	3,1	4,1	3,9	4,7	0,235	0,305	0,435
0,22	0,28	3,4	4,4	4,3	5,3	0,26	0,35	0,495
0,24	0,31	3,7	4,8	4,8	5,5	0,3	0,39	0,55
0,26	0,34	4,1	5,3	5,2	6,2	0,34	0,44	0,62
0,28	0,37	4,4	5,8	5,7	7	0,385	0,5	0,7
0,31	0,41	4,8	6,4	6,3	7,6	0,42	0,55	0,79
0,34	0,45	5,3	7	0,3	8,3	0,47	0,62	0,85

# Hydraulic nuts HYDNUT

## Reduction in radial internal clearance of spherical roller bearings with tapered bore

Nominal bearing bore diameter		Radial internal clearance before mounting					
		Internal clearance group					
d mm		Group N		Group 3		Group 4	
		mm	mm	mm	mm	mm	mm
over	up to	min.	max.	min.	max.	min.	max.
24	30	0,03	0,04	0,04	0,055	0,055	0,075
30	40	0,035	0,05	0,05	0,065	0,065	0,085
40	50	0,045	0,06	0,06	0,08	0,08	0,1
50	65	0,055	0,075	0,075	0,095	0,095	0,12
65	80	0,07	0,095	0,095	0,12	0,12	0,15
80	100	0,08	0,11	0,11	0,14	0,14	0,18
100	120	0,1	0,135	0,135	0,17	0,17	0,22
120	140	0,12	0,16	0,16	0,2	0,2	0,26
140	160	0,13	0,18	0,18	0,23	0,23	0,3
160	180	0,14	0,2	0,2	0,26	0,26	0,34
180	200	0,16	0,22	0,22	0,29	0,29	0,37
200	225	0,18	0,25	0,25	0,32	0,32	0,41
225	250	0,2	0,27	0,27	0,35	0,35	0,45
250	280	0,22	0,3	0,3	0,39	0,39	0,49
280	315	0,24	0,33	0,33	0,43	0,43	0,54
315	355	0,27	0,36	0,36	0,47	0,47	0,59
355	400	0,3	0,4	0,4	0,52	0,52	0,65
400	450	0,33	0,44	0,44	0,57	0,57	0,72
450	500	0,37	0,49	0,49	0,63	0,63	0,79
500	560	0,41	0,54	0,54	0,68	0,68	0,87
560	630	0,46	0,6	0,6	0,76	0,76	0,98
630	710	0,51	0,67	0,67	0,85	0,85	1,09
710	800	0,57	0,75	0,75	0,96	0,96	1,22
800	900	0,64	0,84	0,84	1,07	1,07	1,37
900	1 000	0,71	0,93	0,93	1,19	1,19	1,52
1 000	1 120	0,78	1,02	1,02	1,3	1,3	1,65
1 120	1 250	0,86	1,12	1,12	1,42	1,42	1,8
1 250	1 400	0,94	1,22	1,22	1,55	1,55	1,96

<sup>1)</sup> Applies only to solid steel shafts and hollow shafts with a bore no larger than half the shaft diameter.

Note: Bearings with a radial internal clearance before fitting in the upper half of the tolerance range are fitted using the larger value for the reduction in radial internal clearance or the axial drive-up distance, while bearings in the lower half of the tolerance range are fitted using the smaller value for the reduction in radial internal clearance or the axial drive-up distance.

<sup>2)</sup> The actual value of the radial internal clearance must not be smaller than the control value. In the case of bearings with a small diameter, this may be difficult to determine.

Reduction in radial internal clearance <sup>1)</sup>		Drive-up distance on								Control value for radial internal clearance after mounting <sup>2)</sup>		
		Taper 1:12 <sup>1)</sup>				Taper 1:30 <sup>1)</sup>						
		Shaft mm		Sleeve mm		Shaft mm		Sleeve mm		Group N mm	Group 3 mm	Group 4 mm
min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	min.	min.
0,015	0,02	0,3	0,35	0,3	0,4	–	–	–	–	0,015	0,02	0,035
0,02	0,025	0,35	0,4	0,35	0,45	–	–	–	–	0,015	0,025	0,04
0,025	0,03	0,4	0,45	0,45	0,5	–	–	–	–	0,02	0,03	0,05
0,03	0,04	0,45	0,6	0,5	0,7	–	–	–	–	0,025	0,035	0,055
0,04	0,05	0,6	0,75	0,7	0,85	–	–	–	–	0,025	0,04	0,07
0,045	0,06	0,7	0,9	0,75	1	1,7	2,2	1,8	2,4	0,035	0,05	0,08
0,05	0,07	0,7	1,1	0,8	1,2	1,9	2,7	2	2,8	0,05	0,065	0,1
0,065	0,09	1,1	1,4	1,2	1,5	2,7	3,5	2,8	3,6	0,055	0,08	0,11
0,075	0,1	1,2	1,6	1,3	1,7	3	4	3,1	4,2	0,055	0,09	0,13
0,08	0,11	1,3	1,7	1,4	1,9	3,2	4,2	3,3	4,6	0,06	0,1	0,15
0,09	0,13	1,4	2	1,5	2,2	3,5	4,5	3,6	5	0,07	0,1	0,16
0,1	0,14	1,6	2,2	1,7	2,4	4	5,5	4,2	5,7	0,08	0,12	0,18
0,11	0,15	1,7	2,4	1,8	2,6	4,2	6	4,6	6,2	0,09	0,13	0,2
0,12	0,17	1,9	2,6	2	2,9	4,7	6,7	4,8	6,9	0,1	0,14	0,22
0,13	0,19	2	3	2,2	3,2	5	7,5	5,2	7,7	0,11	0,15	0,24
0,15	0,21	2,4	3,4	2,6	3,6	6	8,2	6,2	8,4	0,12	0,17	0,26
0,17	0,23	2,6	3,6	2,9	3,9	6,5	9	5,8	9,2	0,13	0,19	0,29
0,2	0,26	3,1	4,1	3,4	4,4	7,7	10	8	10,4	0,13	0,2	0,31
0,21	0,28	3,3	4,4	3,6	4,8	8,2	11	8,4	11,2	0,16	0,23	0,35
0,24	0,32	3,7	5	4,1	5,4	9,2	12,5	9,6	12,8	0,17	0,25	0,36
0,26	0,35	4	5,4	4,4	5,9	10	13,5	10,4	14	0,2	0,29	0,41
0,3	0,4	4,6	6,2	5,1	6,8	11,5	15,5	12	16	0,21	0,31	0,45
0,34	0,45	5,3	7	5,8	7,6	13,3	17,5	13,6	18	0,23	0,35	0,51
0,37	0,5	5,7	7,8	6,3	8,5	14,3	19,5	14,8	20	0,27	0,39	0,57
0,41	0,55	6,3	8,5	7	9,4	15,8	21	16,4	22	0,3	0,43	0,64
0,45	0,6	6,8	9	7,6	10,2	17	23	18	24	0,32	0,48	0,7
0,49	0,65	7,4	9,8	8,3	11	18,5	25	19,6	26	0,34	0,54	0,77
0,55	0,72	8,3	10,8	9,3	12,1	21	27	22,2	28,3	0,36	0,59	0,84

# Hydraulic nuts HYDNUT

## Reduction in radial internal clearance of toroidal roller bearings with tapered bore

Nominal bearing bore diameter		Radial internal clearance before mounting					
		Internal clearance group					
		Group N		Group 3		Group 4	
over	up to	min.	max.	min.	max.	min.	max.
24	30	0,035	0,055	0,05	0,065	0,065	0,085
30	40	0,045	0,065	0,06	0,08	0,08	0,1
40	50	0,05	0,075	0,07	0,095	0,09	0,12
50	65	0,06	0,09	0,085	0,115	0,11	0,15
65	80	0,075	0,11	0,105	0,14	0,135	0,18
80	100	0,095	0,135	0,13	0,175	0,17	0,22
100	120	0,115	0,155	0,155	0,205	0,2	0,255
120	140	0,135	0,18	0,18	0,235	0,23	0,295
140	160	0,155	0,215	0,21	0,27	0,265	0,34
160	180	0,17	0,24	0,235	0,305	0,3	0,385
180	200	0,19	0,26	0,26	0,33	0,325	0,42
200	225	0,21	0,29	0,285	0,365	0,36	0,46
225	250	0,235	0,315	0,315	0,405	0,4	0,515
250	280	0,255	0,345	0,34	0,445	0,44	0,56
280	315	0,28	0,38	0,375	0,485	0,48	0,62
315	355	0,315	0,42	0,415	0,545	0,54	0,68
355	400	0,35	0,475	0,47	0,6	0,595	0,755
400	450	0,38	0,525	0,525	0,655	0,65	0,835
450	500	0,435	0,575	0,575	0,735	0,73	0,915
500	560	0,47	0,64	0,63	0,81	0,8	1,01
560	630	0,53	0,71	0,7	0,89	0,88	1,11
630	710	0,59	0,78	0,77	0,99	0,98	1,23
710	800	0,67	0,86	0,86	1,1	1,1	1,38
800	900	0,73	0,96	0,95	1,22	1,21	1,53
900	1 000	0,81	1,04	1,04	1,34	1,34	1,67
1 000	1 120	0,89	1,17	1,16	1,5	1,49	1,88
1 120	1 250	0,97	1,28	1,27	1,64	1,63	2,06
1 250	1 400	1,08	1,41	1,41	1,79	1,78	2,25
1 400	1 600	1,2	1,55	1,55	1,99	1,99	2,5
1 600	1 800	1,32	1,69	1,69	2,18	2,18	2,73

1) Applies only to solid steel shafts and hollow shafts with a bore no larger than half the shaft diameter.

Note: Bearings with a radial internal clearance before fitting in the upper half of the tolerance range are fitted using the larger value for the reduction in radial internal clearance or the axial drive-up distance, while bearings in the lower half of the tolerance range are fitted using the smaller value for the reduction in radial internal clearance or the axial drive-up distance.

2) The actual value of the radial internal clearance must not be smaller than the control value. In the case of bearings with a small diameter, this may be difficult to determine.

Reduction in radial internal clearance <sup>1)</sup>		Drive-up distance on				Control value for radial internal clearance after mounting <sup>2)</sup>		
		Taper 1:12 <sup>1)</sup>		Taper 1:30 <sup>1)</sup>		Group N	Group 3	Group 4
		Shaft		Shaft				
mm		mm		mm		mm	mm	mm
min.	max.	min.	max.	min.	max.	min.	min.	min.
0,01	0,017	0,24	0,29	0,61	0,72	0,025	0,035	0,048
0,014	0,021	0,3	0,34	0,76	0,84	0,031	0,041	0,059
0,018	0,028	0,37	0,42	0,91	1,04	0,033	0,046	0,062
0,024	0,035	0,46	0,5	1,14	1,24	0,036	0,054	0,075
0,03	0,046	0,55	0,61	1,37	1,53	0,045	0,065	0,09
0,04	0,056	0,67	0,73	1,68	1,83	0,056	0,08	0,114
0,049	0,069	0,79	0,89	1,98	2,23	0,066	0,093	0,131
0,06	0,083	0,91	1,05	2,29	2,62	0,075	0,105	0,147
0,072	0,095	1,04	1,21	2,59	3,02	0,083	0,123	0,17
0,081	0,107	1,16	1,36	2,9	3,41	0,089	0,137	0,193
0,09	0,121	1,28	1,52	3,2	3,81	0,1	0,15	0,204
0,101	0,134	1,43	1,68	3,58	4,2	0,109	0,162	0,226
0,113	0,151	1,59	1,88	3,96	4,69	0,123	0,177	0,249
0,126	0,168	1,77	2,08	4,42	5,19	0,129	0,186	0,273
0,142	0,188	1,98	2,31	4,95	5,78	0,138	0,203	0,292
0,16	0,211	2,23	2,59	5,56	6,47	0,155	0,221	0,329
0,18	0,238	2,5	2,9	6,25	7,26	0,17	0,251	0,357
0,203	0,268	2,81	3,26	7,01	8,15	0,178	0,279	0,382
0,225	0,3	3,11	3,66	7,78	9,14	0,21	0,3	0,43
0,25	0,335	3,48	4,05	8,69	10,13	0,22	0,325	0,465
0,285	0,375	3,9	4,52	9,76	11,31	0,245	0,355	0,505
0,32	0,42	4,39	5,08	10,98	12,69	0,27	0,38	0,56
0,36	0,475	4,94	5,71	12,35	14,27	0,31	0,425	0,625
0,405	0,535	5,55	6,42	13,88	16,05	0,325	0,46	0,675
0,45	0,605	6,16	7,21	15,4	18,03	0,36	0,49	0,735
0,505	0,67	6,89	8	17,23	20	0,385	0,545	0,82
0,565	0,75	7,69	8,95	19,21	22,37	0,41	0,58	0,88
0,63	0,84	8,6	9,98	21,5	24,94	0,45	0,64	0,94
0,72	0,94	9,82	11,16	24,55	27,9	0,48	0,685	1,05
0,81	1,07	11,04	12,74	27,6	31,85	0,51	0,705	1,11

# Hydraulic nuts HYDNUT

## Ordering examples

The designation is the unique reference for an article. The designation for a hydraulic nut can be found in the dimension tables. The designation for a dial gauge can be found in the product overview. The designation for replacement seals can be found in the tables containing the designations and ordering numbers for hydraulic nuts and replacement seals. Even if the designation is the unique reference, the ordering number should be stated when ordering.

Ordering example 1      Analogue dial gauge including two extension pieces.

    Designation      **HYDNUT.GAUGE-ANALOG**

    Ordering number      094107947-0000-10

Ordering example 2      Digital dial gauge including two extension pieces.

    Designation      **HYDNUT.GAUGE-DIGITAL**

    Ordering number      094108099-0000-10



## Ordering numbers

All ordering numbers are listed in the following tables.

### Hydraulic nuts and seals HYDNU...-E (metric thread)

Hydraulic nut		Seal (set)	
HYDNU...-E	Ordering number	HYDNU...-E	Ordering number
50-E	092186300-0000-10	50.SEAL	038858193-0000-02
55-E	089705254-0000-10	55.SEAL	022473726-0000-02
60-E	092186521-0000-10	60.SEAL	038858231-0000-02
65-E	092186505-0000-10	65.SEAL	038858240-0000-02
70-E	092186483-0000-10	70.SEAL	038858266-0000-02
75-E	086435205-0000-10	75.SEAL	038858282-0000-02
80-E	092186440-0000-10	80.SEAL	038858304-0000-02
85-E	092186416-0000-10	85.SEAL	019270208-0000-02
90-E	089903218-0000-10	90.SEAL	054408270-0000-10
95-E	092186394-0000-10	95.SEAL	038858320-0000-02
100-E	089705297-0000-10	100.SEAL	038857880-0000-02
105-E	092192475-0000-10	105.SEAL	039620190-0000-02
110-E	092192343-0000-10	110.SEAL	038857898-0000-02
115-E	092192220-0000-10	115.SEAL	038857901-0000-10
120-E	089961072-0000-10	120.SEAL	038857910-0000-02
125-E	092192181-0000-10	125.SEAL	039620204-0000-02
130-E	092192092-0000-10	130.SEAL	038857936-0000-02
135-E	092191932-0000-10	135.SEAL	039620212-0000-10
140-E	089961137-0000-10	140.SEAL	038857944-0000-02
145-E	092191894-0000-10	145.SEAL	038857952-0000-02
150-E	089705319-0000-10	150.SEAL	038857960-0000-02
155-E	092191843-0000-10	155.SEAL	039620220-0000-02
160-E	089961170-0000-10	160.SEAL	038857979-0000-10
165-E	092191797-0000-10	165.SEAL	019268548-0000-02
170-E	089961234-0000-10	170.SEAL	038857987-0000-02
180-E	089907507-0000-10	180.SEAL	038857995-0000-10
190-E	092191509-0000-10	190.SEAL	038858002-0000-02
200-E	089961340-0000-10	200.SEAL	038858010-0000-02

# Hydraulic nuts HYDNUT

Hydraulic nuts and seals  
HYDNUT...E  
(trapezoidal thread)

Hydraulic nut		Seal (set)	
HYDNUT	Ordering number	HYDNUT	Ordering number
205-E	092194370-0000-10	205.SEAL	076209652-0000-10
210-E	092194362-0000-10	210.SEAL	039708772-0000-02
215-E	092194346-0000-10	215.SEAL	039620247-0000-02
220-E	089705335-0000-10	220.SEAL	038858029-0000-02
225-E	092193935-0000-10	225.SEAL	019268734-0000-02
230-E	086435361-0000-10	230.SEAL	039620255-0000-02
235-E	092205712-0000-10	235.SEAL	038858045-0000-02
240-E	089907710-0000-10	240.SEAL	038858053-0000-02
250-E	092205704-0000-10	250.SEAL	038858061-0000-02
260-E	089961390-0000-10	260.SEAL	038858070-0000-02
270-E	092205690-0000-10	270.SEAL	038858088-0000-02
275-E	092205682-0000-10	275.SEAL	069728852-0000-10
280-E	089961420-0000-10	280.SEAL	038858096-0000-02
290-E	092205674-0000-10	290.SEAL	038858100-0000-02
295-E	092205666-0000-10	295.SEAL	092672523-0000-10
300-E	089705351-0000-10	300.SEAL	038858118-0000-10
310-E	092205658-0000-10	310.SEAL	039620263-0000-10
315-E	092205640-0000-10	315.SEAL	092672558-0000-10
320-E	092205631-0000-10	320.SEAL	038858126-0000-10
330-E	092205623-0000-10	330.SEAL	039620271-0000-10
335-E	092205615-0000-10	335.SEAL	092672663-0000-10
340-E	092205836-0000-10	340.SEAL	038858134-0000-10
345-E	092205828-0000-10	345.SEAL	039620280-0000-10
350-E	092205810-0000-10	350.SEAL	038858142-0000-10
355-E	092205801-0000-10	355.SEAL	092679870-0000-10
360-E	089907817-0000-10	360.SEAL	039049396-0000-10
365-E	092205798-0000-10	365.SEAL	038384671-0000-10
370-E	092205780-0000-10	370.SEAL	089975880-0000-10
375-E	092205771-0000-10	375.SEAL	092679919-0000-10
380-E	089961471-0000-10	380.SEAL	038858150-0000-10
385-E	092205755-0000-10	385.SEAL	088096777-0000-10
395-E	092205720-0000-10	395.SEAL	039620301-0000-10
400-E	089961536-0000-10	400.SEAL	038858169-0000-10
410-E	092217427-0000-10	410.SEAL	038456435-0000-10
415-E	092217419-0000-10	415.SEAL	092680097-0000-10
420-E	089907850-0000-10	420.SEAL	038858177-0000-10
430-E	092217400-0000-10	430.SEAL	087022486-0000-10
435-E	092217389-0000-10	435.SEAL	092680178-0000-10

continued ▼

**Hydraulic nuts and seals  
HYDNUT..-E  
(trapezoidal thread)**

Hydraulic nut		Seal (set)	
HYDNUT	Ordering number	HYDNUT	Ordering number
440-E	092217362-0000-10	440.SEAL	039620310-0000-10
450-E	092217354-0000-10	450.SEAL	039620328-0000-10
460-E	089705483-0000-10	460.SEAL	039620336-0000-10
470-E	092217338-0000-10	470.SEAL	038456443-0000-10
480-E	089961676-0000-10	480.SEAL	038858185-0000-10
490-E	092217273-0000-10	490.SEAL	092680232-0000-10
500-E	089961846-0000-10	500.SEAL	038858207-0000-10
510-E	092217265-0000-10	510.SEAL	085295078-0000-10
520-E	092217133-0000-10	520.SEAL	064017621-0000-10
530-E	089961919-0000-10	530.SEAL	039716538-0000-10
540-E	092217109-0000-10	540.SEAL	068895453-0000-10
550-E	092217095-0000-10	550.SEAL	038858215-0000-10
560-E	089705513-0000-10	560.SEAL	038858223-0000-10
570-E	092217079-0000-10	570.SEAL	092680267-0000-10
580-E	09222323-0000-10	580.SEAL	054408598-0000-10
590-E	09222315-0000-10	590.SEAL	054759030-0000-02
600-E	09222307-0000-10	600.SEAL	039620344-0000-10
610-E	09222293-0000-10	610.SEAL	092681530-0000-10
625-E	09222285-0000-10	625.SEAL	058657916-0000-10
630-E	09222277-0000-10	630.SEAL	039620352-0000-10
650-E	089907892-0000-10	650.SEAL	054408385-0000-10
655-E	092222145-0000-10	655.SEAL	092681565-0000-10
670-E	092222137-0000-10	670.SEAL	038858258-0000-10
680-E	092222129-0000-10	680.SEAL	092681581-0000-10
690-E	092222110-0000-10	690.SEAL	092681603-0000-10
695-E	092230075-0000-10	695.SEAL	092681760-0000-10
710-E	089865979-0000-10	710.SEAL	038858274-0000-10
720-E	092232965-0000-10	720.SEAL	092681778-0000-10
740-E	092232930-0000-10	740.SEAL	092681794-0000-10
750-E	092232922-0000-10	750.SEAL	038858290-0000-10
760-E	092232914-0000-10	760.SEAL	092681816-0000-10
780-E	092232892-0000-10	780.SEAL	072469170-0000-10
800-E	092232876-0000-10	800.SEAL	038858312-0000-10
830-E	092232868-0000-10	830.SEAL	039698211-0000-10
850-E	089705521-0000-10	850.SEAL	065253205-0000-10
880-E	092237746-0000-10	880.SEAL	092680283-0000-10
900-E	092237738-0000-10	900.SEAL	038456451-0000-10
930-E	092237720-0000-10	930.SEAL	058964088-0000-10
950-E	089907930-0000-10	950.SEAL	080688780-0000-10

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## Hydraulic nuts HYDNUT

### Hydraulic nuts and seals HYDNUT...E (trapezoidal thread)

Hydraulic nut		Seal (set)	
HYDNUT	Ordering number	HYDNUT	Ordering number
1000-E	092237703-0000-10	1000.SEAL	060584734-0000-10
1060-E	092237690-0000-10	1060.SEAL	092680356-0000-10
1080-E	092237681-0000-10	1080.SEAL	092681840-0000-10
1120-E	089705556-0000-10	1120.SEAL	092661769-0000-10
1180-E	089866118-0000-10	1180.SEAL	087022613-0000-10

continued ▲

### Hydraulic nuts and seals HYDNUT...E-INCH

Hydraulic nut		Seal (set)	
HYDNUT	Ordering number	HYDNUT	Ordering number
50-E-INCH	093932677-0000-10	50.SEAL	038858193-0000-02
55-E-INCH	093934165-0000-10	55.SEAL	022473726-0000-02
60-E-INCH	093934998-0000-10	60.SEAL	038858231-0000-02
65-E-INCH	093935633-0000-10	65.SEAL	038858240-0000-02
70-E-INCH	093936907-0000-10	70.SEAL	038858266-0000-02
75-E-INCH	093937199-0000-10	75.SEAL	038858282-0000-02
80-E-INCH	093997965-0000-10	80.SEAL	038858304-0000-02
85-E-INCH	094000638-0000-10	85.SEAL	019270208-0000-02
90-E-INCH	092427022-0000-10	90.SEAL	054408270-0000-10
95-E-INCH	092524397-0000-10	95.SEAL	038858320-0000-02
100-E-INCH	092400760-0000-10	100.SEAL	038857880-0000-02
105-E-INCH	092418341-0000-10	105.SEAL	039620190-0000-02
110-E-INCH	092525296-0000-10	110.SEAL	038857898-0000-02
120-E-INCH	092441297-0000-10	120.SEAL	038857910-0000-02
130-E-INCH	092525520-0000-10	130.SEAL	038857936-0000-02
140-E-INCH	092526284-0000-10	140.SEAL	038857944-0000-02
150-E-INCH	092412360-0000-10	150.SEAL	038857960-0000-02
160-E-INCH	092527809-0000-10	160.SEAL	038857979-0000-10
170-E-INCH	092531466-0000-10	170.SEAL	038857987-0000-02
180-E-INCH	092431364-0000-10	180.SEAL	038857995-0000-10
190-E-INCH	092531768-0000-10	190.SEAL	038858002-0000-02
200-E-INCH	092423779-0000-10	200.SEAL	038858010-0000-02
220-E-INCH	092377785-0000-10	220.SEAL	038858029-0000-02
240-E-INCH	092532489-0000-10	240.SEAL	038858053-0000-02
260-E-INCH	092425488-0000-10	260.SEAL	038858070-0000-02
280-E-INCH	092426166-0000-10	280.SEAL	038858096-0000-02

continued ▼

**Hydraulic nuts and seals  
HYDNUT..-E-INCH**

Hydraulic nut		Seal (set)	
HYDNUT	Ordering number	HYDNUT	Ordering number
300-E-INCH	092416403-0000-10	300.SEAL	038858118-0000-10
320-E-INCH	092534759-0000-10	320.SEAL	038858126-0000-10
340-E-INCH	092407021-0000-10	340.SEAL	038858134-0000-10
360-E-INCH	092536808-0000-10	360.SEAL	039049396-0000-10
380-E-INCH	092426662-0000-10	380.SEAL	038858150-0000-10
400-E-INCH	092417043-0000-10	400.SEAL	038858169-0000-10
420-E-INCH	092538800-0000-10	420.SEAL	038858177-0000-10
440-E-INCH	092543200-0000-10	440.SEAL	039620310-0000-10
460-E-INCH	092402844-0000-10	460.SEAL	039620336-0000-10
480-E-INCH	092546323-0000-10	480.SEAL	038858185-0000-10
500-E-INCH	092549640-0000-10	500.SEAL	038858207-0000-10
530-E-INCH	092413102-0000-10	530.SEAL	039716538-0000-10
560-E-INCH	093759932-0000-10	560.SEAL	038858223-0000-10
600-E-INCH	093757824-0000-10	600.SEAL	039620344-0000-10
630-E-INCH	093762178-0000-10	630.SEAL	039620352-0000-10
670-E-INCH	093453531-0000-10	670.SEAL	038858258-0000-10
710-E-INCH	093763662-0000-10	710.SEAL	038858274-0000-10
750-E-INCH	093765215-0000-10	750.SEAL	038858290-0000-10
800-E-INCH	093765754-0000-10	800.SEAL	038858312-0000-10
850-E-INCH	093768710-0000-10	850.SEAL	065253205-0000-10
900-E-INCH	093769091-0000-10	900.SEAL	038456451-0000-10
950-E-INCH	093741693-0000-10	950.SEAL	080688780-0000-10

continued ▲

# Hydraulic nuts HYDNUT

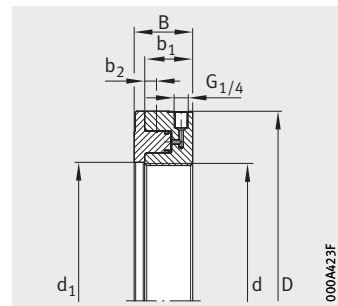
## Hydraulic nuts and seals HYDNUT...HEAVY

Hydraulic nut		Seal (set)	
HYDNUT	Ordering number	HYDNUT	Ordering number
100-HEAVY	087022893-0000-10	100-HEAVY.SEAL	093204000-0000-10
125-HEAVY	039083403-0000-02	125-HEAVY.SEAL	054409772-0000-02
150-HEAVY	087023067-0000-10	150-HEAVY.SEAL	069290482-0000-10
175-HEAVY	038456427-0000-02	175-HEAVY.SEAL	093204051-0000-10
200-HEAVY	054758947-0000-10	200-HEAVY.SEAL	039620239-0000-02
225-HEAVY	061190012-0000-10	225-HEAVY.SEAL	038858037-0000-02
250-HEAVY	039620182-0000-10	250-HEAVY.SEAL	054409713-0000-02
275-HEAVY	093097921-0000-10	275-HEAVY.SEAL	059279273-0000-10
300-HEAVY	061569933-0000-10	300-HEAVY.SEAL	061178675-0000-10
325-HEAVY	054409489-0000-10	325-HEAVY.SEAL	064188442-0000-10
350-HEAVY	093244614-0000-10	350-HEAVY.SEAL	093204299-0000-10
375-HEAVY	055315348-0000-10	375-HEAVY.SEAL	039620298-0000-10
400-HEAVY	088547701-0000-10	400-HEAVY.SEAL	093204329-0000-10
425-HEAVY	093250630-0000-10	425-HEAVY.SEAL	064189007-0000-10
450-HEAVY	062207180-0000-10	450-HEAVY.SEAL	087414414-0000-10
475-HEAVY	069844852-0000-10	475-HEAVY.SEAL	064189449-0000-10
500-HEAVY	093253460-0000-10	500-HEAVY.SEAL	094107475-0000-10
525-HEAVY	093253931-0000-10	525-HEAVY.SEAL	094107483-0000-10
550-HEAVY	093265514-0000-10	550-HEAVY.SEAL	094107491-0000-10
575-HEAVY	054551315-0000-10	575-HEAVY.SEAL	039079520-0000-10
600-HEAVY	093265859-0000-10	600-HEAVY.SEAL	094107505-0000-10
625-HEAVY	093266022-0000-10	625-HEAVY.SEAL	094107513-0000-10
650-HEAVY	093266170-0000-10	650-HEAVY.SEAL	079987702-0000-10
675-HEAVY	093266235-0000-10	675-HEAVY.SEAL	053955064-0000-10
700-HEAVY	093266383-0000-10	700-HEAVY.SEAL	094107521-0000-10
750-HEAVY	093266421-0000-10	750-HEAVY.SEAL	094107530-0000-10
800-HEAVY	093266570-0000-10	800-HEAVY.SEAL	094107548-0000-10
850-HEAVY	093266642-0000-10	850-HEAVY.SEAL	094107556-0000-10
900-HEAVY	092764592-0000-10	900-HEAVY.SEAL	039062775-0000-10



# Hydraulic nut

Metric thread

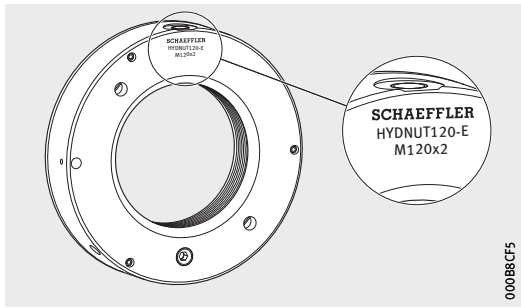


Dimensions

Dimension table · Dimensions in mm

Designation	Thread d  mm	Mass ≈ m			Dimensions	
		Total	Annular piston	Press ring	D	B
		kg	kg	kg		
HYDNUT50-E	M50×1,5	2,4	0,5	1,7	110	40
HYDNUT55-E	M55×2	2,8	0,5	2,1	118	40
HYDNUT60-E	M60×2	3	0,6	2,1	125	40
HYDNUT65-E	M65×2	3,3	0,7	2,4	132	40
HYDNUT70-E	M70×2	3,7	0,8	2,6	140	40
HYDNUT75-E	M75×2	3,9	0,8	2,8	145	40
HYDNUT80-E	M80×2	4	0,9	2,9	150	40
HYDNUT85-E	M85×2	4,2	0,9	3	155	40
HYDNUT90-E	M90×2	4,5	1	3,2	160	41
HYDNUT95-E	M95×2	4,7	1,1	3,4	165	41
HYDNUT100-E	M100×2	4,9	1,1	3,5	170	41
HYDNUT105-E	M105×2	5,3	1,2	3,8	175	43
HYDNUT110-E	M110×2	5,5	1,3	3,9	180	43
HYDNUT115-E	M115×2	5,6	1,3	4	185	43
HYDNUT120-E	M120×2	5,8	1,4	4,1	190	43
HYDNUT125-E	M125×2	6,2	1,5	4,4	195	44
HYDNUT130-E	M130×2	6,4	1,5	4,6	200	44
HYDNUT135-E	M135×2	6,5	1,6	4,6	205	44
HYDNUT140-E	M140×2	6,7	1,6	4,8	210	44
HYDNUT145-E	M145×2	6,9	1,7	4,9	215	44
HYDNUT150-E	M150×2	7,1	1,8	5,1	220	44
HYDNUT155-E	M155×3	7,3	1,9	5,2	225	44
HYDNUT160-E	M160×3	8,7	2,1	6,2	235	47
HYDNUT165-E	M165×3	8,9	2,2	6,4	240	47
HYDNUT170-E	M170×3	9,1	2,3	6,5	245	47
HYDNUT180-E	M180×3	9,6	2,4	6,9	255	47
HYDNUT190-E	M190×3	11,5	2,9	8,2	270	50
HYDNUT200-E	M200×3	12	3	8,6	280	50



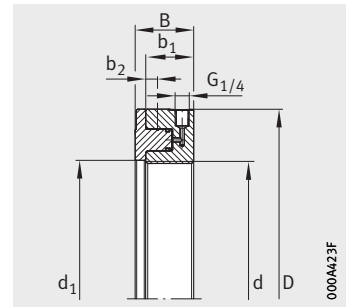


M: Metric thread

d <sub>1</sub>	b <sub>1</sub>	Stroke length	Piston surface	Oil volume	Max. pressure	Drive-up force
		b <sub>2</sub> mm	cm <sup>2</sup>	l	bar	kN
51	36	4	31	0,5	700	214
56	36	4	31	0,5	700	219
61	36	4	32	0,5	700	222
66	36	4	36	0,5	700	249
71	36	4	41	0,5	700	286
76	36	4	45	0,5	700	314
81	36	4	49	0,5	700	343
86	36	4	49	0,5	700	345
91	37	5	49	0,5	700	346
96	37	5	52	0,5	700	364
101	37	5	54	0,5	700	381
106	37	5	57	0,5	600	340
111	37	5	59	0,5	600	352
116	37	5	61	0,5	600	365
121	37	5	63	0,5	600	378
126	37	5	65	0,5	600	391
131	37	5	65	0,5	600	387
136	37	5	67	0,5	600	399
141	37	5	69	0,5	600	414
146	37	5	71	0,5	600	424
151	37	5	75	0,5	600	452
156	37	5	82	0,5	600	491
161	40	6	87	0,5	600	523
166	40	6	92	0,5	600	554
171	40	6	95	0,5	600	568
181	40	6	103	0,5	600	618
191	42	8	116	0,5	600	695
201	42	8	125	0,5	600	750

# Hydraulic nut

Trapezoidal thread

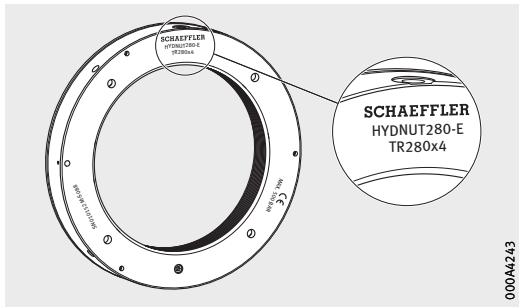


Dimensions

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Dimension table · Dimensions in mm

Designation	Thread d  mm	Mass ≈ m			Dimensions	
		Total	Annular piston	Press ring	D	B
		kg	kg	kg		
HYDNUT205-E	Tr205×4	13	3,3	9,3	290	50
HYDNUT210-E	Tr210×4	13,8	3,5	9,9	295	52
HYDNUT215-E	Tr215×4	14,1	3,6	10,1	300	52
HYDNUT220-E	Tr220×4	14,5	3,8	10,5	305	52
HYDNUT225-E	Tr225×4	16	4,9	10,7	315	53
HYDNUT230-E	Tr230×4	16,3	5	10,9	320	53
HYDNUT235-E	Tr235×4	16,6	5,2	11,1	325	53
HYDNUT240-E	Tr240×4	17	5,3	11,3	330	53
HYDNUT250-E	Tr250×4	18,9	5,9	12,6	345	54
HYDNUT260-E	Tr260×4	19,9	6,2	13,3	355	55
HYDNUT270-E	Tr270×4	22,3	7	14,9	370	56
HYDNUT275-E	Tr275×4	22,6	7,1	15,1	375	56
HYDNUT280-E	Tr280×4	23	7,3	15,3	380	56
HYDNUT290-E	Tr290×4	24,1	7,6	16,1	390	57
HYDNUT295-E	Tr295×4	25,9	8,2	17,3	400	57
HYDNUT300-E	Tr300×4	28,5	8,8	19,0	405	62
HYDNUT310-E	Tr310×5	29,3	9,4	19,5	415	62
HYDNUT315-E	Tr315×5	29,7	9,5	19,8	420	62
HYDNUT320-E	Tr320×5	32,3	10,3	21,5	430	63
HYDNUT330-E	Tr330×5	33,7	10,8	22,5	440	64
HYDNUT335-E	Tr335×5	34,2	10,9	22,8	445	64
HYDNUT340-E	Tr340×5	34,6	11	23,1	450	64
HYDNUT345-E	Tr345×5	35	11,2	23,3	455	64
HYDNUT350-E	Tr350×5	37,3	11,9	24,9	465	64
HYDNUT355-E	Tr355×5	38,4	12,3	25,6	470	65
HYDNUT360-E	Tr360×5	38,9	12,5	25,9	475	65
HYDNUT365-E	Tr365×5	40,1	12,8	26,7	482	65
HYDNUT370-E	Tr370×5	42,4	13,6	28,3	490	66
HYDNUT375-E	Tr375×5	42,9	13,7	28,6	495	66
HYDNUT380-E	Tr380×5	43,4	13,9	28,9	500	66
HYDNUT385-E	Tr385×5	43,9	14,1	29,3	505	66
HYDNUT395-E	Tr395×5	44,3	14,2	29,5	512	67

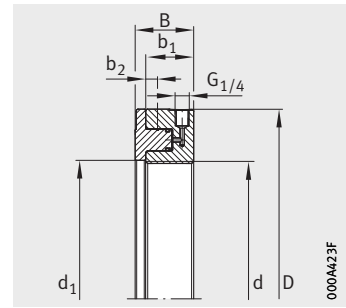


TR: Trapezoidal thread

d <sub>1</sub>	b <sub>1</sub>	Stroke length	Piston surface	Oil volume	Max. pressure	Drive-up force
		b <sub>2</sub> mm	cm <sup>2</sup>	l	bar	kN
207	42	8	132	0,5	500	661
212	43	9	135	0,5	500	675
217	43	9	138	0,5	500	689
222	43	9	144	0,5	500	721
227	44	10	153	0,5	500	766
232	44	10	160	0,5	500	800
237	44	10	162	0,5	500	809
242	44	10	165	0,5	500	827
252	44	10	182	0,5	500	911
262	45	11	188	0,5	500	939
272	46	12	196	0,5	500	980
277	46	12	204	0,5	500	1019
282	46	12	212	0,5	500	1059
292	47	13	218	0,5	500	1092
297	47	13	230	0,5	500	1150
302	52	13	237	0,5	500	1185
312	52	13	249	0,5	500	1246
317	52	13	253	0,5	500	1264
322	53	14	264	0,5	500	1322
332	53	14	271	0,5	500	1355
337	53	14	275	0,5	500	1373
342	53	14	284	0,5	500	1419
347	53	14	288	0,5	500	1438
352	53	14	306	0,5	500	1530
357	54	15	304	1	500	1519
362	54	15	313	1	500	1564
367	54	15	317	1	500	1584
372	55	16	323	1	500	1614
377	55	16	334	1	500	1669
382	55	16	337	1	500	1685
387	55	16	348	1	500	1740
397	56	16	356	1	500	1780

# Hydraulic nut

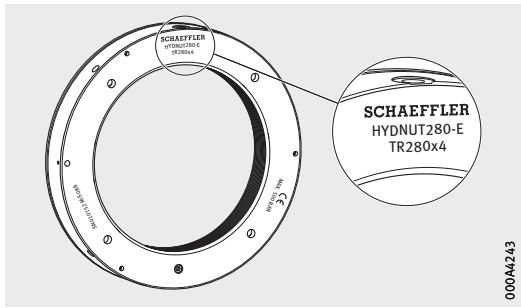
Trapezoidal thread



Dimensions

Dimension table (continued) - Dimensions in mm

Designation	Thread d  mm	Mass ≈ m			Dimensions	
		Total kg	Annular piston kg	Press ring kg	D	B
HYDNUT400-E	Tr400×5	49,7	16	33,1	525	69
HYDNUT410-E	Tr410×5	50,8	16,3	33,9	535	69
HYDNUT415-E	Tr415×5	51,3	16,5	34,2	540	69
HYDNUT420-E	Tr420×5	52,2	16,8	34,8	545	70
HYDNUT430-E	Tr430×5	57,5	18,5	38,3	555	75
HYDNUT435-E	Tr435×5	58,1	18,7	38,7	560	75
HYDNUT440-E	Tr440×5	58,7	18,9	39,1	565	75
HYDNUT450-E	Tr450×5	62,6	20,1	41,7	580	75
HYDNUT460-E	Tr460×5	64,3	20,7	42,9	590	76
HYDNUT470-E	Tr470×5	65,9	21,2	43,9	600	76
HYDNUT480-E	Tr480×5	69,2	22,2	46,1	612	77
HYDNUT490-E	Tr490×5	73,2	23,5	48,8	625	78
HYDNUT500-E	Tr500×5	75,5	24,3	50,3	635	79
HYDNUT510-E	Tr510×6	76,8	24,8	51,2	645	79
HYDNUT520-E	Tr520×6	80,5	25,9	53,7	657	80
HYDNUT530-E	Tr530×6	84,9	27,5	56,6	670	81
HYDNUT540-E	Tr540×6	86,3	27,9	57,5	680	81
HYDNUT550-E	Tr550×6	89,1	28,8	59,4	692	81
HYDNUT560-E	Tr560×6	92,3	29,5	61,5	705	81
HYDNUT570-E	Tr570×6	101,2	32,8	67,5	715	87
HYDNUT580-E	Tr580×6	102,8	33,3	68,5	725	87
HYDNUT590-E	Tr590×6	108,4	35,3	72,3	740	87
HYDNUT600-E	Tr600×6	109,3	35,6	72,9	750	87
HYDNUT610-E	Tr610×6	113,5	36,9	75,7	760	89
HYDNUT625-E	Tr625×6	116	37,7	77,3	775	89
HYDNUT630-E	Tr630×6	116,8	38	77,9	780	89
HYDNUT650-E	Tr650×6	124,6	40,5	83,1	805	89
HYDNUT655-E	Tr655×6	125,5	41	83,7	810	89
HYDNUT670-E	Tr670×6	128,1	41,8	85,4	825	89
HYDNUT680-E	Tr680×6	131,6	42,9	87,7	837	89
HYDNUT690-E	Tr690×6	137,8	45	91,9	850	90
HYDNUT695-E	Tr695×6	138,7	45,4	92,5	855	90

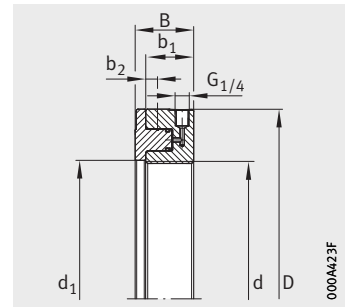


TR: Trapezoidal thread

d <sub>1</sub>	b <sub>1</sub>	Stroke length	Piston surface	Oil volume	Max. pressure	Drive-up force
		b <sub>2</sub> mm	cm <sup>2</sup>	l	bar	kN
402	58	17	368	1	500	1 842
412	58	17	382	1	400	1 527
417	58	17	386	1	400	1 543
422	58	17	390	1	400	1 560
432	63	17	398	1	400	1 593
437	63	17	403	1	400	1 610
442	63	17	425	1	400	1 699
452	63	17	442	1	400	1 766
462	64	18	450	1	400	1 802
472	64	18	459	1	400	1 837
482	65	19	460	1	400	1 840
492	65	19	506	2	400	2 022
502	66	20	523	2	400	2 092
512	66	20	532	2	400	2 130
522	67	21	542	2	400	2 168
532	68	22	562	2	400	2 248
542	68	22	581	2	400	2 326
552	68	22	592	2	400	2 369
562	68	22	612	2	400	2 448
572	74	23	631	2	400	2 525
582	74	23	641	2	400	2 566
592	74	23	666	2	400	2 665
603	74	23	676	2	400	2 706
613	75	24	687	2	400	2 747
628	75	24	702	2	400	2 808
633	75	24	728	2	400	2 911
653	75	24	763	2	300	2 288
658	75	24	768	2	300	2 304
673	75	24	795	3	300	2 385
683	75	24	819	3	300	2 458
693	76	25	844	3	300	2 531
698	76	25	862	3	300	2 585

# Hydraulic nut

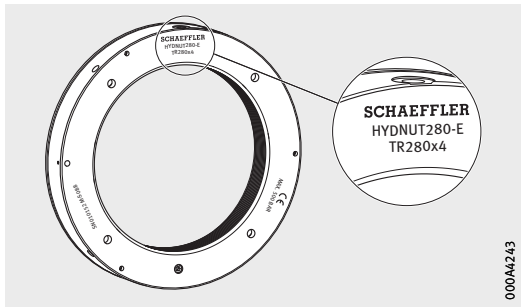
Trapezoidal thread



Dimensions

Dimension table (continued) · Dimensions in mm

Designation	Thread d  mm	Mass ≈ m			Dimensions	
		Total	Annular piston	Press ring	D	B
		kg	kg	kg		
HYDNUT710-E	Tr710×7	141,6	46,4	94,4	870	90
HYDNUT720-E	Tr720×7	147,8	48,4	98,5	883	91
HYDNUT740-E	Tr740×7	158,7	51,9	105,8	910	91
HYDNUT750-E	Tr750×7	173,5	56,8	115,7	922	97
HYDNUT760-E	Tr760×7	179	58,6	119,3	935	97
HYDNUT780-E	Tr780×7	187	61,4	124,7	955	99
HYDNUT800-E	Tr800×7	187,1	61,4	124,7	970	100
HYDNUT830-E	Tr830×7	195,4	64,2	130,3	1000	101
HYDNUT850-E	Tr850×7	199,6	65,9	133,1	1020	101
HYDNUT880-E	Tr880×7	206	67,6	137,3	1050	101
HYDNUT900-E	Tr900×7	210,3	69	140,2	1070	101
HYDNUT930-E	Tr930×8	218,8	72,1	145,9	1100	102
HYDNUT950-E	Tr950×8	230,9	76	153,9	1125	102
HYDNUT1000-E	Tr1000×8	256,7	84,5	171,1	1185	102
HYDNUT1060-E	Tr1060×8	298,1	98,2	198,7	1255	106
HYDNUT1080-E	Tr1080×8	314,8	104	209,9	1280	107
HYDNUT1120-E	Tr1120×8	373,2	134,1	237,9	1340	111
HYDNUT1180-E	Tr1180×8	473,4	176,1	295,9	1430	117

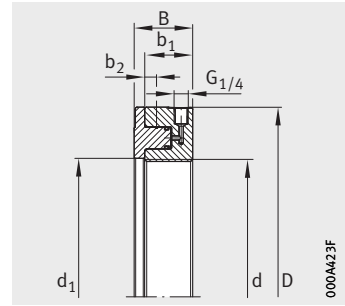


TR: Trapezoidal thread

d <sub>1</sub>	b <sub>1</sub>	Stroke length	Piston surface	Oil volume	Max. pressure	Drive-up force
		b <sub>2</sub> mm	cm <sup>2</sup>	l	bar	kN
713	76	25	878	3	300	2 633
723	76	25	928	3	300	2 783
743	76	25	991	3	300	2 974
753	82	26	1 033	3	300	3 099
763	82	26	1 046	3	300	3 137
783	84	28	1 068	4	300	3 204
803	84	28	1 079	4	300	3 237
833	85	29	1 101	4	300	3 304
853	85	29	1 156	4	300	3 468
883	85	29	1 148	4	300	3 445
903	85	29	1 251	4	300	3 752
933	86	30	1 289	5	300	3 868
953	86	30	1 319	5	300	3 957
1 003	86	30	1 492	5	300	4 475
1 063	88	32	1 612	6	300	4 835
1 083	89	33	1 678	6	300	5 033
1 123	92	36	1 901	8	300	5 702
1 183	95	39	2 099	9	300	6 296

# Hydraulic nut

Threads in inch sizes



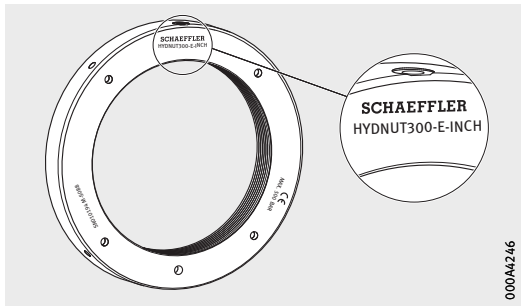
Dimensions

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Dimension table · Dimensions in mm

Designation	Thread		Flank diameter		Quantity Thread turns per inch	Mass ≈ m		
	d					Total	Annular piston	Press ring
						kg	kg	kg
mm	inch	mm	inch	kg	kg	kg		
HYDNUT50-E-INCH	49,962	1,967	49,045	1,9309	18	2,4	0,5	1,7
HYDNUT55-E-INCH	54,788	2,157	53,871	2,1209	18	2,8	0,5	2,1
HYDNUT60-E-INCH	59,944	2,36	59,027	2,3239	18	3	0,6	2,1
HYDNUT65-E-INCH	64,719	2,548	63,802	2,5119	18	3,3	0,7	2,4
HYDNUT70-E-INCH	69,873	2,751	68,958	2,7149	18	3,7	0,8	2,6
HYDNUT75-E-INCH	74,498	2,933	73,124	2,8789	12	3,9	0,8	2,8
HYDNUT80-E-INCH	79,68	3,137	78,306	3,0829	12	4	0,9	2,9
HYDNUT85-E-INCH	84,836	3,34	83,462	3,2859	12	4,2	0,9	3
HYDNUT90-E-INCH	89,586	3,527	88,212	3,4729	12	4,5	1	3,3
HYDNUT95-E-INCH	94,742	3,73	93,368	3,6759	12	4,7	1,1	3,4
HYDNUT100-E-INCH	99,517	3,918	98,143	3,8639	12	4,9	0,5	3,5
HYDNUT105-E-INCH	104,699	4,122	103,325	4,0679	12	5,3	1,2	3,8
HYDNUT110-E-INCH	109,855	4,325	108,481	4,2709	12	5,5	1,3	3,9
HYDNUT120-E-INCH	119,786	4,716	118,412	4,6619	12	5,8	1,4	4,1
HYDNUT130-E-INCH	129,692	5,106	128,318	5,0519	12	6,4	1,5	4,6
HYDNUT140-E-INCH	139,624	5,497	138,25	5,4429	12	6,7	1,6	4,8
HYDNUT150-E-INCH	149,555	5,888	148,181	5,8339	12	7,1	1,9	5,2
HYDNUT160-E-INCH	159,614	6,284	157,551	6,2028	8	8,7	2	5,9
HYDNUT170-E-INCH	169,139	6,659	167,067	6,5778	8	9,1	2,2	6,3
HYDNUT180-E-INCH	179,476	7,066	177,414	6,9848	8	9,6	2,4	6,9
HYDNUT190-E-INCH	189,789	7,472	187,726	7,3908	8	11,5	2,9	8,2
HYDNUT200-E-INCH	199,314	7,847	197,251	7,7658	8	12	3	8,6
HYDNUT220-E-INCH	219,151	8,628	217,089	8,5468	8	14,5	3,8	10,3
HYDNUT240-E-INCH	239,827	9,442	237,076	9,3337	6	17	5,3	11,3
HYDNUT260-E-INCH	258,877	10,192	256,126	10,0837	6	19,9	6,2	13,3
HYDNUT280-E-INCH	279,502	11,004	276,751	10,8975	6	23	7,3	15,3



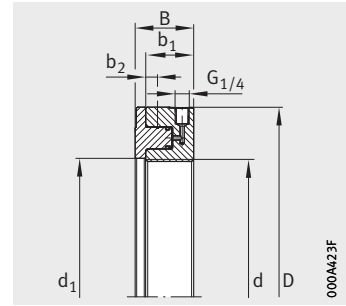


INCH: Inch size thread

Dimensions				Stroke length $b_2$	Piston surface	Oil volume	Max. pressure	Drive-up force
D	B	$d_1$	$b_1$					
				mm	cm <sup>2</sup>	l	bar	kN
110	40	51	36	4	31	0,5	700	214
118	40	56	36	4	31	0,5	700	219
125	40	61	36	4	32	0,5	700	222
132	40	66	36	4	36	0,5	700	249
140	40	71	36	4	41	0,5	700	286
145	40	76	36	4	45	0,5	700	314
150	40	81	36	4	49	0,5	700	343
155	40	86	36	4	49	0,5	700	345
160	41	91	37	5	50	0,5	700	346
165	41	96	37	5	52	0,5	700	364
170	41	101	37	5	54	0,5	700	381
175	43	106	37	5	57	0,5	600	340
180	43	111	37	5	59	0,5	600	352
190	43	121	37	5	63	0,5	600	378
200	44	131	37	5	65	0,5	600	387
210	44	141	37	5	69	0,5	600	414
220	44	151	37	5	75	0,5	600	452
235	47	161	40	6	87	0,5	600	523
245	47	171	40	6	95	0,5	600	568
255	47	181	40	6	103	0,5	600	618
270	50	191	42	8	116	0,5	600	695
280	50	201	42	8	125	0,5	600	750
305	52	222	43	9	144	0,5	500	721
330	53	242	44	10	165	0,5	500	827
355	55	262	45	11	188	0,5	500	939
380	56	282	46	12	212	0,5	500	1 059

# Hydraulic nut

Threads in inch sizes

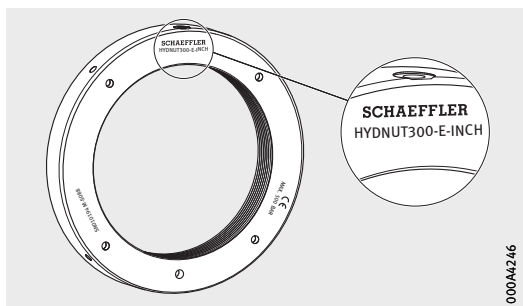


Dimensions

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Dimension table (continued) · Dimensions in mm

Designation	Thread		Flank diameter		Quantity Thread turns per inch	Mass ≈ m		
	d		mm	inch		Total kg	Annular piston kg	Press ring kg
	mm	inch						
HYDNUT300-E-INCH	299,339	11,785	296,588	11,6767	6	28,5	8,8	18,5
HYDNUT320-E-INCH	319,075	12,562	316,324	12,4537	6	32,3	10,3	21,5
HYDNUT340-E-INCH	338,811	13,339	335,763	13,219	5	34,6	11	23
HYDNUT360-E-INCH	359,918	14,17	356,87	14,05	5	38,9	12,5	25,9
HYDNUT380-E-INCH	379,908	14,957	376,86	14,837	5	43,4	13,9	28,9
HYDNUT400-E-INCH	399,923	15,745	396,875	15,625	5	49,7	16	33,1
HYDNUT420-E-INCH	419,913	16,532	416,865	16,412	5	52,2	16,8	34,8
HYDNUT440-E-INCH	439,903	17,319	436,855	17,199	5	58,7	18,9	39,1
HYDNUT460-E-INCH	459,918	18,107	456,87	17,987	5	64,3	20,7	42,9
HYDNUT480-E-INCH	479,908	18,894	476,86	18,774	5	69,2	22,2	46,1
HYDNUT500-E-INCH	499,923	19,682	496,875	19,562	5	75,5	24,3	49,4
HYDNUT530-E-INCH	530,022	20,867	526,339	20,722	4	84,9	27,5	56,6
HYDNUT560-E-INCH	560,019	22,048	556,336	21,9030	4	92,9	29,5	61,5
HYDNUT600-E-INCH	600,024	23,623	596,341	23,4780	4	110,1	35,6	72,9
HYDNUT630-E-INCH	630,022	24,804	626,339	24,6590	4	117,7	38	77,9
HYDNUT670-E-INCH	670,027	26,379	666,344	26,2340	4	128,9	41,8	85,4
HYDNUT710-E-INCH	710,209	27,961	705,46	27,7740	3	142,2	46,4	94,4
HYDNUT750-E-INCH	750,214	29,536	745,465	29,3490	3	174,4	57	115,7
HYDNUT800-E-INCH	800,202	31,504	795,452	31,3170	3	188,1	62,4	124,7
HYDNUT850-E-INCH	850,214	33,473	845,464	33,2860	3	200,7	65,9	133,1
HYDNUT900-E-INCH	900,201	35,441	895,452	35,2540	3	211,5	69	140,2
HYDNUT950-E-INCH	950,214	37,410	945,464	37,2230	3	231,6	79	153,9

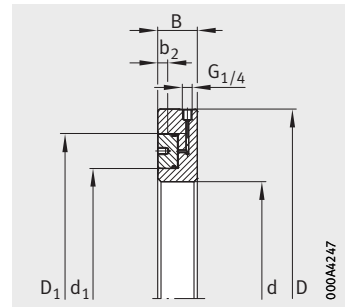


INCH: Inch size thread

Dimensions				Stroke length b <sub>2</sub>	Piston surface	Oil volume	Max. pressure	Drive-up force
D	B	d <sub>1</sub>	b <sub>1</sub>					
				mm	cm <sup>2</sup>	l	bar	kN
405	62	302	52	13	237	0,5	500	1 185
430	63	322	53	14	264	0,5	500	1 322
450	64	342	53	14	284	0,5	500	1 419
475	65	362	54	15	313	1	500	1 564
500	66	382	55	16	337	1	500	1 685
525	69	402	58	17	368	1	500	1 842
545	70	422	58	17	390	1	400	1 560
565	75	442	63	17	425	1	400	1 699
590	76	462	64	18	450	1	400	1 802
612	77	482	65	18	460	1	400	1 840
635	79	502	66	20	523	2	400	2 092
670	81	532	68	22	562	2	400	2 248
705	81	562	68	22	612	2	400	2 448
750	87	603	74	23	676	2	400	2 706
780	89	633	75	24	728	2	400	2 911
825	89	673	75	24	795	3	300	2 385
870	90	713	76	25	878	3	300	2 633
922	97	753	82	26	1 033	3	300	3 099
970	100	803	84	28	1 079	4	300	3 237
1 020	101	853	85	29	1 156	4	300	3 468
1 070	101	903	85	29	1 251	4	300	3 752
1 125	102	953	86	30	1 319	5	300	3 957

# Hydraulic nut

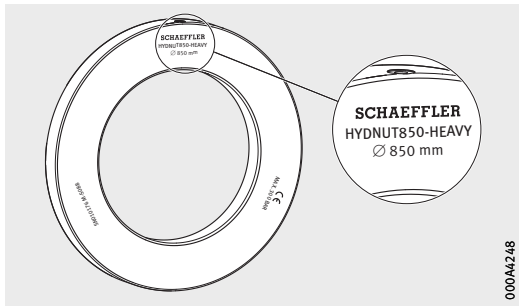
No thread, reinforced



Dimensions

Dimension table · Dimensions in mm

Designation	Mass ≈ m			Dimensions		
	Total	Annular piston	Press ring	d	D	B
	kg	kg	kg			
HYDNUT100-HEAVY	11,3	2,4	8,8	100	225	46
HYDNUT125-HEAVY	12,4	2,5	9,7	125	245	46
HYDNUT150-HEAVY	14,1	2,6	11,2	150	270	46
HYDNUT175-HEAVY	17,8	3	14,5	175	305	47
HYDNUT200-HEAVY	20,1	3,9	15,8	200	330	48
HYDNUT225-HEAVY	24	5,1	18,6	225	365	48
HYDNUT250-HEAVY	26,1	6,4	19,3	250	390	48
HYDNUT275-HEAVY	31,8	8,1	23,3	275	430	48
HYDNUT300-HEAVY	42,9	9,2	33,4	300	470	54
HYDNUT325-HEAVY	47,3	10,6	36,4	325	500	54
HYDNUT350-HEAVY	55,4	12,9	42,1	350	540	54
HYDNUT375-HEAVY	62,2	15,3	46,5	375	575	54
HYDNUT400-HEAVY	76,2	18,5	57,3	400	620	56
HYDNUT425-HEAVY	82,1	20,5	61,2	425	650	56
HYDNUT450-HEAVY	104,5	25,4	78,9	450	690	63
HYDNUT475-HEAVY	114,6	28,3	86,1	475	725	63
HYDNUT500-HEAVY	131,1	34,6	96,3	500	760	66
HYDNUT525-HEAVY	145,9	39,1	106,4	525	800	66
HYDNUT550-HEAVY	162,8	45,3	117,2	550	835	68
HYDNUT575-HEAVY	175,8	49,8	125,7	575	870	68
HYDNUT600-HEAVY	215,8	57,4	158,6	600	910	76
HYDNUT625-HEAVY	231,6	62,3	169,6	625	945	76
HYDNUT650-HEAVY	274	73,8	200,6	650	980	84
HYDNUT675-HEAVY	297,9	79,1	219,5	675	1 020	84
HYDNUT700-HEAVY	330,5	87,9	243,5	700	1 060	86
HYDNUT750-HEAVY	381,3	107,1	275,4	750	1 130	88
HYDNUT800-HEAVY	453,1	126,2	328,9	800	1 205	92
HYDNUT850-HEAVY	520,3	151,9	371,1	850	1 275	95
HYDNUT900-HEAVY	595,6	174,2	424,8	900	1 350	97



HEAVY: No thread, reinforced

D <sub>1</sub>	d <sub>1</sub>	Stroke length	Piston surface	Oil volume	Max. pressure	Drive-up force
		b <sub>2</sub> mm	cm <sup>2</sup>	l	bar	kN
180	125	10	132	0,5	700	920
200	150	10	137	0,5	600	820
226	180	10	147	0,5	600	880
250	205	11	161	0,5	600	970
280	230	12	200	0,5	600	1 200
313	255	12	259	0,5	500	1 300
345	280	12	319	0,5	500	1 600
380	305	12	403	1,0	500	2 020
410	335	13	439	1	500	2 200
440	360	13	503	1	500	2 520
475	385	13	608	1	500	3 040
510	410	13	723	2	500	3 620
545	440	15	812	2	500	4 060
575	465	15	899	2	400	3 600
610	490	17	1 037	2	400	4 150
642	515	17	1 154	3	400	4 620
675	540	20	1 288	3	400	5 150
710	565	20	1 452	4	400	5 810
742	590	22	1 590	4	400	6 360
775	615	22	1 747	4	400	6 990
808	645	25	1 860	5	400	7 440
840	670	25	2 016	6	400	8 060
875	695	28	2 220	7	300	6 660
906	720	28	2 375	7	300	7 130
940	750	30	2 522	8	300	7 570
1 007	800	32	2 938	10	300	8 810
1 070	855	35	3 250	12	300	9 750
1 135	905	38	3 685	15	300	11 060
1 200	960	40	4 072	17	300	12 220

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TPI 196 / 02 / en-GB / DE / 2021-12