
ROMANIA
NUTR 40
URB
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URB

Support rollers

Standards, Boundary dimensions

Standard plans	DIN 616

General

Support Rollers are cylindrical roller bearings with an extra radially thick outer ring.

Support Rollers usually run with their outer ring either directly on a guide track or against a machine surface that is for guidance. Due to their extra - thick outer rings, support rollers are able to accept high radial forces as well as shock loads. Their ability to accommodate axial forces, however, depends on the particular design of the support roller. Support rollers are usually exposed to minor misalignments during operation. To minimize the negative effects of such misalignments, (e.g. high edge stresses), support rollers are more frequently used with sphered outer rings.

URB - support rollers with parallel (cylindrical) outer diameters are indicated by the suffix "X".

Design variants

To provide simple re-lubrication, all support rollers have lubrication holes in their inner rings. For the most common design are shown in the figures on the pages 503.

Support Rollers with axial guidance

These types of supporting rollers are also to accommodate additional thrust loads as they occur, due to aligning errors or if rollers run out of line. That is why no extra external guiding surfaces are required.

Where high axial loads are anticipated effective axial support of side washers must be achieved by the adjacent machine components.

NUTR - type support rollers

The base internal design of **NUTR** - type support rollers is similar to that of double row cylindrical roller bearings. Since the outer ring has two shoulders these support rollers are able to accommodate greater thrust loads.

NUTR - type support rollers are non-separable. The separate loose ribs of these types are retained using either cupped washers press - fitted into the outer ring or with lamellar rings which sit in the formed circumferential grooves machined in the loose rib outer diameter. Both methods also act as a gap seal. Due to do their full complement design, **NUTR** - type support roller feature a maximum load rating but they must be more frequently re-lubrication. For extra heavy duty applications, particularly where heavy shock loads occurs **NUTR** – type support rollers are available with an extra - radially thick walled outer ring (see sketch).

URB's extra - heavy - duty **NUTR** - type support rollers with increased outer ring wall thickness are identified by the fact that their nominal diameters are included in their designation.

Examples: **NUTR 1747** or **NUTR 50110**.

All **URB support rollers are produced with crowned outer ring diameter as standard** they are also available with parallel (cylindrical) outer diameters indicated by the suffix "X" see the relevant designs.

Grease filling

All **URB Support rollers** are already supplied filled with a high quality, lithium - soaped bearing grease as standard. This lubricant is adequate for operating temperatures of -30°C up to ca. +110°C. Although support rollers under normal operating conditions usually run maintenance - free, they may require more frequent re - lubrication under certain un-favorable operating conditions such as heavy dust, high speeds, permanent operating temperatures of more than 70°C, and the presence of increased humidity etc.

Therefore a **URB support rollers** feature a lubrication hole in the inner ring to provide the possibility of re-lubricating the rollers, when necessary.

It must be considered where re-lubrication is necessary; to be done with satisfactory type of grease, the force of pressure to re-grease must be of a level not to cause permanent damage to either the seals or shields.

URB also produce roller with alternative grease fill according to customer's specification upon order request.

Tolerances

URB support rollers are produced to normal tolerance class (**PN**) as standard, according to DIN - standard DIN 620. The exceptions being the outer ring outer diameter tolerance of crowned outer rings and the width tolerance of supporting roller **NUTR**. The tolerance for the outer ring diameter of support rollers with sphered outer ring is uniform at: **0 / -0,05 mm**.

The width tolerance of support rollers of series **NUTR** is lateral and lies in the ISO – tolerance field **h12**.

Values of ISO – tolerance field F6 and h12 are listed in the table below. For detailed values of tolerances to DIN 620 see chapter "**Bearing tolerances**" page 26.

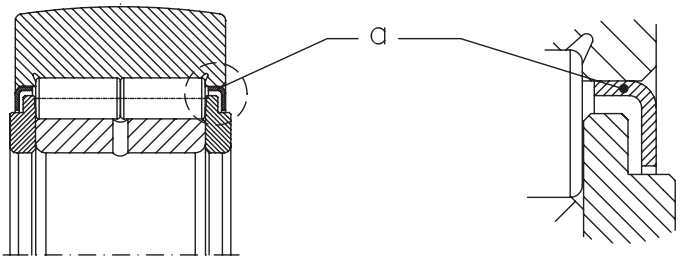
Tolerance values of ISO - tolerance fields F6 and h12 [µm]								
Nominal dimension	**[mm]**	>	**3**	**6**	**10**	**18**	**30**	**50**
		≤	**6**	**10**	**18**	**30**	**50**	**80**
ISO - Tolerance field	**F6**	min	10	13	16	20	25	30
		max	18	22	27	33	41	49
ISO - Tolerance field	**h12**	min	-120	-150	-180	-210	-250	-300
		max	0	0	0	0	0	0

Internal Clearance

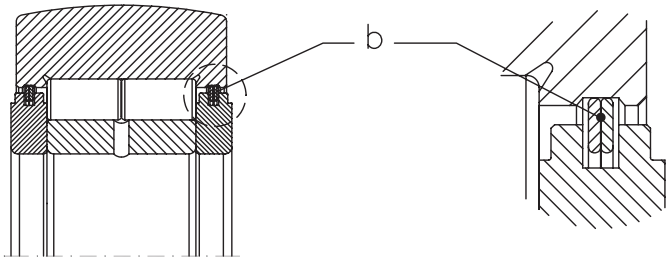
URB Support rollers are produced to normal internal clearance group (**CN**) as standard according to DIN 620.

Load carrying capability

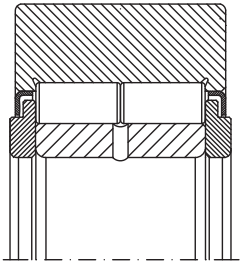
Unlike "normal" rolling element bearings, the outer ring of support rollers contact the adjacent parts with a very small contacting surface only.



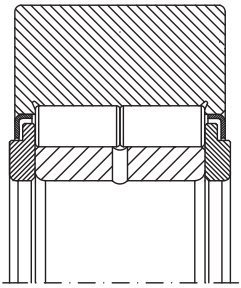
NUTR (a)



NUTR (b)



NUTR...X



NUTR...XXXX

This causes deformations of the outer ring. These are considered by the recommended maximum values for the permissible dynamic and static loads as given by the product tables.

Equivalent dynamic load

Where support rollers must be calculated as rolling element bearings:

$$P=F_r$$

But, **P** must be ≤ $\mathbf{F_r max}$
(for $\mathbf{F_r max}$ see product tables)

Equivalent static bearing load

For Support rollers:

$$P_0=F_r$$

But, $\mathbf{P_0}$ must be ≤ $\mathbf{F_{0r}\ max}$
(for $\mathbf{F_{0r} max}$ see product tables)

Hardened guide surfaces, however, feature a higher wear – resistance and may therefore be smaller in diameter.

The diameter of the supposed shaft raceway should have a diameter tolerance according to k5.

The shaft or pin, have to fulfill certain requirements in terms of hardness, dimensional and geometric accuracy.

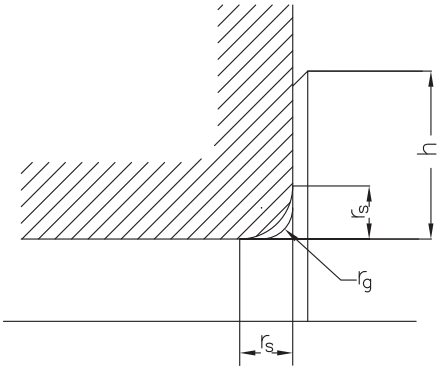
For detailed information on the design requirements see the chapter “Bearing applications” on page 43.

For support roller which are exposed to high axial loads, effective lateral support of their side washers is necessary.

Since Support rollers usually have point loaded inner rings, their shaft may be rather loose (i.e. according to ISO – tolerance fields **g6**, **h6** or **j6**).

Abutment and Fillet dimensions for Support rollers

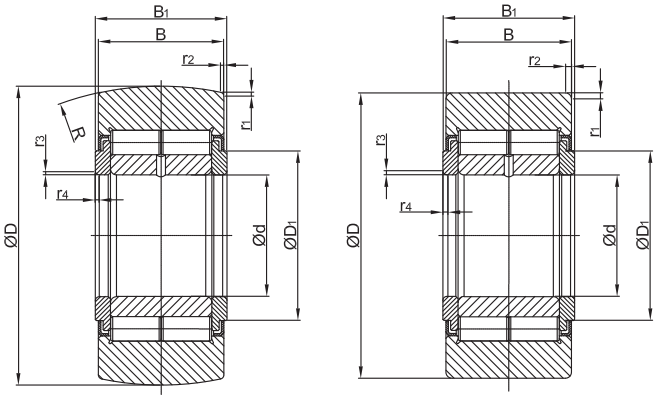
The bearing inner ring must contact adjacent surfaces with their side faces only. The fillet radius of inner ring corners must not touch the fillet radius of shaft shoulder.



r_{smin}	r_{gmax}	h_{min}
0.6	0.6	2.1
1	1	2.8
1.1	1	3.5
1.5	1.5	4.5
2	2	5.5


URB

Support Rollers with axial guidance



Dimensions							Designation	
D	d	B	B_1	r_1,r_2 min.	r_3,r_4 min.	R	with sphered outer ring	with cylindrical outer ring
mm								
35	15	18	19	0,6	0,3	500	**NUTR15**	**NUTR15 X**
40	17	20	21	1	0,3	500	**NUTR17**	**NUTR17 X**
42	15	18	19	0,6	0,3	500	**NUTR1542**	**NUTR1542 X**
47	17	20	21	1	0,3	500	**NUTR1747**	**NUTR1747 X**
47	20	24	25	1	0,3	500	**NUTR20**	**NUTR20 X**
52	20	24	25	1	0,3	500	**NUTR2052**	**NUTR2052 X**
52	25	24	25	1	0,3	500	**NUTR25**	**NUTR25 X**
62	25	24	25	1	0,3	500	**NUTR 2562**	**NUTR2562 X**
62	30	28	29	1	0,3	500	**NUTR 30**	**NUTR30 X**
72	30	28	29	1	0,3	500	**NUTR3072**	**NUTR3072 X**
72	35	28	29	1,1	0,3	500	**NUTR35**	**NUTR35 X**
80	35	28	29	1,1	0,6	500	**NUTR3580**	**NUTR3580 X**
80	40	30	32	1,1	0,6	500	**NUTR40**	**NUTR40 X**
85	45	30	32	1,1	0,6	500	**NUTR45**	**NUTR45 X**
90	40	30	32	1,1	0,6	500	**NUTR4090**	**NUTR4090 X**
90	50	30	32	1,1	0,6	500	**NUTR50**	**NUTR50 X**
100	45	30	32	1,1	0,6	500	**NUTR45100**	**NUTR45100 X**
110	50	30	32	1,1	0,6	500	**NUTR50110**	**NUTR50110 X**
160	65	70	72	2	2	500	**NUTR65x160x72**	**NUTR65x160x72 X**
160	80	70	72	2	2	500	**NUTR80x160x72**	**NUTR80x160x72 X**

Support Rollers with axial guidance

Dimensions		Speed rating	Load ratings				Max.permissible radial load		Mass
			as bearing		as support roller				
D	D_1		dyn. C_r	stat. C_{0r}	dyn. C_{LR}	stat. C_{0LR}	dyn. $F_{r\,max}$	stat. $F_{0r\,max}$	
mm		min^{-1}	kN				kN		kg
35	20	5600	24,2	28,5	16,8	17,6	8,7	12,2	0,10
40	22	5300	26	32	19	20	14	22,2	0,15
42	20	5600	24,2	28,5	20,1	17,6	21,6	31	0,16
47	22	5300	26	32	22	27	30	43	0,22
47	28,2	4500	39	49	28,6	33,5	17	25	0,25
52	28,2	4500	39	49	30	39	30	42,5	0,32
52	33,9	3800	44,6	61	29,7	36	18	25,5	0,28
62	33,9	3800	44,6	61	35,8	48	44	63	0,45
62	39,6	3200	60	78	41,3	47,5	24	34,5	0,47
72	39,6	3200	60	78	46,5	61	52	76,5	0,71
72	47,3	2800	65,5	91,5	44	57	33,5	47,5	0,63
80	47,3	2800	65,5	91,5	49	68	57	81,5	0,86
80	55,3	2400	91,3	134	57,2	72	32	45,5	0,82
85	55	2000	98,8	146	58,3	75	32,5	46,5	0,88
90	51	2400	91,3	134	68,2	91,5	63	90	1,16
90	60	1900	101	160	58,3	78	32,5	47,5	0,95
100	55	2000	96,8	146	73,6	104	80	114	1,43
110	60	1900	101	160	78,1	116	98	140	1,73
160	87,3	1600	301	454,6	270	385	390	280	8,8
160	101,8	1500	338	551	295	460	320	425	8,03

Rolling Elements

General

Rolling Elements are simple geometric bodies that are produced to very high precision standard by the rolling bearing industry. Rolling elements are made from hardened bearing steel.

They have fine ground or even super finished surfaces as standard. Rolling elements such as Cylindrical Rollers are used in a wide variety of Rolling Bearings for a whole spectrum of applications and industries. Additional to the use in rolling bearings, individual rolling elements are frequently used separately or loose for other requirements or applications, such as Gauge Rollers, Cycles wheels etc.

The more popular sizes are normally available and supplied loose from stock.

Cylindrical Rollers

Standards, Boundary dimensions

Cylindrical rollers of through - hardening
Rolling bearings steel DIN 5402/part 1

Hardness

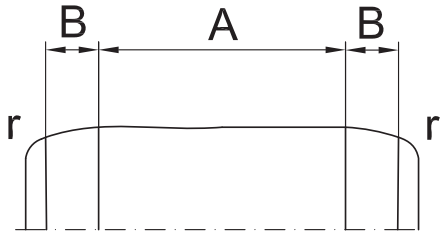
URB cylindrical rollers made from through - hardened rolling bearing steel according to DIN 17 230 have a surface hardness of **58** up to **65 HRC**.

Design features

URB cylindrical rollers are produced using the latest technology, with the modified surface profile (i.e. semi-crowned) as standard (see sketch below).

This modified profile features a cylindrical center diameter (**A**) that blends into a slightly curved area (**B**) which blends into the roller radii (**r**) and end face.

This feature reduces considerably the negative effect of edge loading and, therefore, additional stresses. For manufacturing reasons, small cylindrical rollers may have shallow recesses in their end faces. Such recesses have a depth of approximately 0.5 mm the diameter is approximately half the nominal roller diameter (**DW**). **In cases where such recess cylindrical rollers are unsuitable for application reasons, it must be clearly stated on the order**.

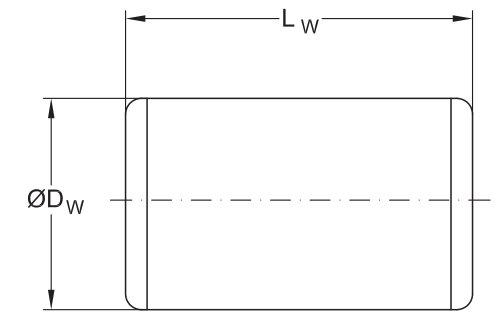


Tolerances for URB Cylindrical Rollers

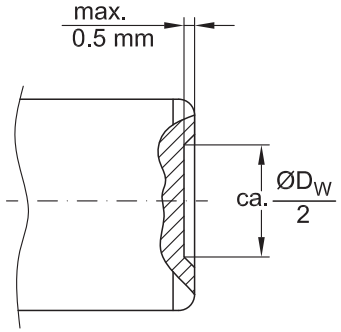
Values of dimensional and geometrical accuracy of **URB** cylindrical rollers

Roller diameter Nominal $ØD_w$		**Tolerances**		**Gauge interval l**	**Gauge mean values** (deviation range)			**Roundness tolerance to DIN ISO 1101**
>	≤	min.	max.					
mm		µm		µm	µm			µm
-	**26**	-17	11	2	-8 ... -1	0	+1 ... +6	1
26	**40**	-19,5	+10,5	3	-9 ... -1,5	0	+1,5 ... +6	1,2

Roller Length Nominal L_w		**Tolerances**		**Gauge interval l**	**Gauge mean values** (deviation range)	**Tolerance of end face runout to DIN ISO 1101**
>	≤	min.	max.			
mm		µm		µm	µm	µm
-	**48**	-20	+10	6	-18 / -12 / -6 / 0 / +6	6
48	**-**	-45	+15	10	-30 / -20 / -10 / 0 / +10	10



a



b

Grades, Tolerances

URB cylindrical rollers are graded according to the mean deviations from nominal diameter and length. The lots of rollers are separately packed and the lot designation is marked on the package.

Designation

The designation consists of the leters"RC", followed by the nominal diameter and nominal length and grade symbol.

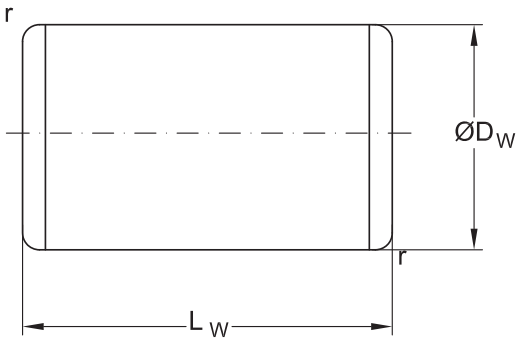
Example for designation: RC 6,5x9

RC Symbol for cylindrical rollers
D_w = 6,5mm (nominal roller diameter)
L_w = 9mm (nominal roller length)

Cylindrical Rollers to other Tolerances

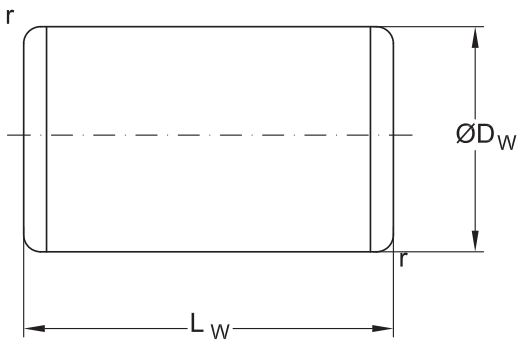
URB also produces cylindrical rollers with reduced tolerances to customer order requirements. **URB** will provide detailed information on request.

Cylindrical Rollers



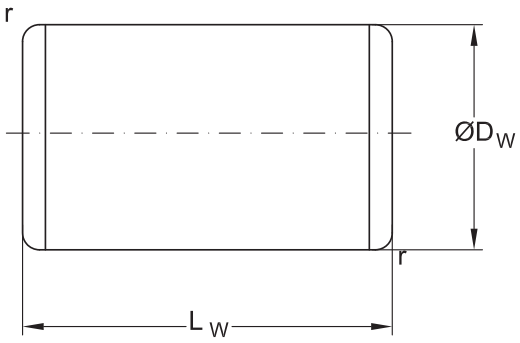
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
5	8	0,2	0,5	RC 5X8	0,001
	9	0,2	0,5	RC 5X9	0,001
5,5	5,5	0,2	0,5	RC 5,5X5,5	0,001
	6	0,2	0,5	RC 5,5X6	0,001
6	12	0,3	0,8	RC 6X12	0,003
	22	0,3	0,8	RC 6X22	0,005
	6	0,3	0,8	RC 6X6	0,001
	7	0,3	0,8	RC 6X7	0,002
	8	0,3	0,8	RC 6X8	0,002
	9	0,3	0,8	RC 6X9	0,002
6,5	6,5	0,3	0,8	RC 6,5X6,5	0,002
	7	0,3	0,8	RC 6,5X7	0,002
	8	0,3	0,8	RC 6,5X8	0,002
	9	0,3	0,8	RC 6,5X9	0,002
	10	0,3	0,8	RC 6,5X10	0,003
7	7	0,3	0,8	RC 7X7	0,002
	8	0,3	0,8	RC 7X8	0,002
	10	0,3	0,8	RC 7X10	0,003
	11	0,3	0,8	RC 7X11	0,004
	15	0,3	0,8	RC 7X15	0,005
	17,5	0,3	0,8	RC 7X17,5	0,005
	22	0,3	0,8	RC 7X22	0,006
7,07	35	0,3	0,8	RC 7,07X35	0,011
7,45	11	0,3	0,8	RC 7,45X11	0,004
7,5	7,5	0,3	0,8	RC 7,5X7,5	0,003
	9	0,3	0,8	RC 7,5X9	0,003
	11	0,3	0,8	RC 7,5X11	0,004

Cylindrical Rollers



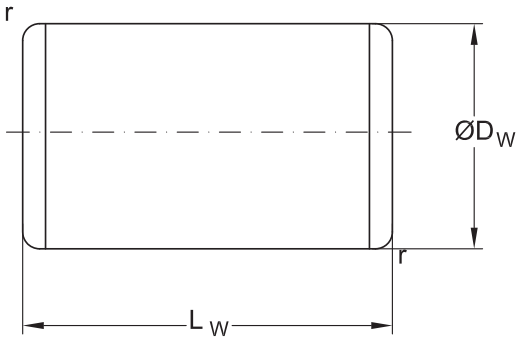
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
7,5	12	0,3	0,8	RC 7,5X12	0,004
	40	0,3	0,8	RC 7,5X40	0,014
7,6	17	0,3	0,8	RC 7,64X17	0,006
7,9	25,4	0,3	0,8	RC 7,9X25,4	0,009
8	6,5	0,3	0,8	RC 8X6,5	0,003
	7	0,3	0,8	RC 8X7	0,003
	7,85	0,3	0,8	RC 8X7,85	0,003
	8	0,3	0,8	RC 8X8	0,003
	10	0,3	0,8	RC 8X10	0,004
	11	0,3	0,8	RC 8X11	0,004
	12	0,3	0,8	RC 8X12	0,005
	14	0,3	0,8	RC 8X14	0,006
	14,5	0,3	0,8	RC 8X14,5	0,006
	16	0,3	0,8	RC 8X16	0,006
	18	0,3	0,8	RC 8X18	0,007
	20	0,3	0,8	RC 8X20	0,008
	26	0,3	0,8	RC 8X26	0,01
	28	0,3	0,8	RC 8x28	0,011
9	9	0,3	0,8	RC 9X9	0,005
	10	0,3	0,8	RC 9X10	0,005
	10,5	0,3	0,8	RC 9X10,5	0,005
	13	0,3	0,8	RC 9X13	0,006
	14	0,3	0,8	RC 9X14	0,0068
	18	0,3	0,8	RC 9X18	0,008
	43	0,3	0,8	RC 9X43	0,021
9,5	6	0,3	0,8	RC 9,5X6	0,003
	8	0,3	0,8	RC 9,5X8	0,0044

Cylindrical Rollers



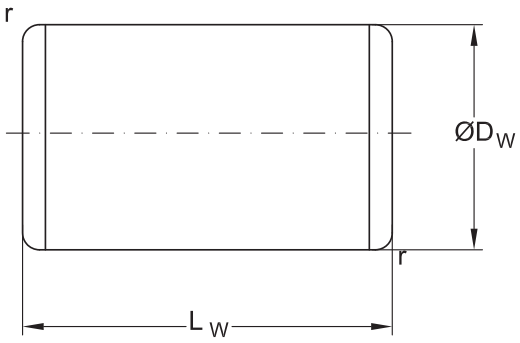
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
9,5	9,5	0,3	0,8	**RC 9,5X9,5**	0,005
10	10	0,5	1,2	**RC 10X10**	0,006
	11	0,5	1,2	**RC 10X11**	0,007
	12,5	0,5	1,2	**RC 10X12,5**	0,008
	14	0,5	1,2	**RC 10X14**	0,009
	15	0,5	1,2	**RC 10X15**	0,009
	16	0,5	1,2	**RC 10X16**	0,01
	17	0,5	1,2	**RC 10X17**	0,01
	20	0,5	1,2	**RC 10X20**	0,012
	21,8	0,5	1,2	**RC 10X21,8**	0,013
	45	0,5	1,2	**RC 10X45**	0,027
	50	0,5	1,2	**RC 10X50**	0,031
10,5	21,8	0,5	1,2	**RC 10,5X21,8**	0,015
10,6	12,5	0,5	1,2	**RC 10,6X12,5**	0,0084
11	11	0,5	1,2	**RC 11X11**	0,008
	12	0,5	1,2	**RC 11X12**	0,009
	13	0,5	1,2	**RC 11X13**	0,009
	15	0,5	1,2	**RC 11X15**	0,011
	16	0,5	1,2	**RC 11X16**	0,012
	18	0,5	1,2	**RC 11X18**	0,013
	19	0,5	1,2	**RC 11X19**	0,014
	22	0,5	1,2	**RC 11X22**	0,016
	30	0,5	1,2	**RC 11X30**	0,022
	43.637	0,5	1,2	**RC 11X43,637**	0,033
11.112	47,5	0,5	1,2	**RC 11,1125X47,5**	0,036
11.684	64,77	0,5	1,2	**RC 11,684X64,77**	0,055
12	12	0,5	1,2	**RC 12X12**	0,01

Cylindrical Rollers



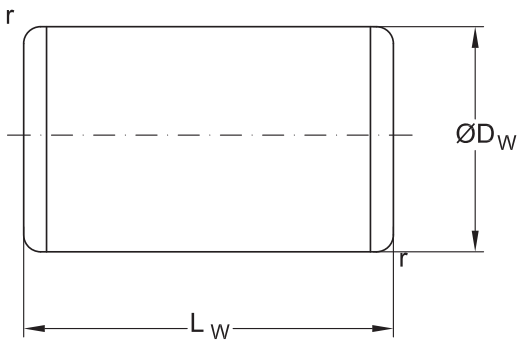
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
12	13,5	0,5	1,2	**RC 12X13,5**	0,012
	14	0,5	1,2	**RC 12X14**	0,012
	17	0,5	1,2	**RC 12X17**	0,015
	18	0,5	1,2	**RC 12X18**	0,016
	21	0,5	1,2	**RC 12X21**	0,018
	47,5	0,5	1,2	**RC 12X47,5**	0,042
	58	0,5	1,2	**RC 12X58**	0,051
12,7	12,7	0,5	1,2	**RC 12,7X12,7**	0,013
	22,2	0,5	1,2	**RC 12,7X22,2**	0,022
	31,75	0,5	1,2	**RC 12,7X31,75**	0,032
	50,8	0,5	1,2	**RC 12,7X50,8**	0,05
	55,5	0,5	1,2	**RC 12,7X55,5**	0,055
	64.135	0,5	1,2	**RC 12,7X64,135**	0,063
	76,2	0,5	1,2	**RC 12,7X76,2**	0,077
13	13	0,5	1,2	**RC 13X13**	0,013
	14	0,5	1,2	**RC 13X14**	0,014
	14,5	0,5	1,2	**RC 13X14,5**	0,014
	18	0,5	1,2	**RC 13X18**	0,018
	20	0,5	1,2	**RC 13X20**	0,02
	21	0,5	1,2	**RC 13X21**	0,022
	25	0,5	1,2	**RC 13X25**	0,026
	26	0,5	1,2	**RC 13X26**	0,027
14	13	0,5	1,2	**RC 14X13**	0,016
	14	0,5	1,2	**RC 14X14**	0,017
	15	0,5	1,2	**RC 14X15**	0,018
	18	0,5	1,2	**RC 14X18**	0,022
	19	0,5	1,2	**RC 14X19**	0,023

Cylindrical Rollers



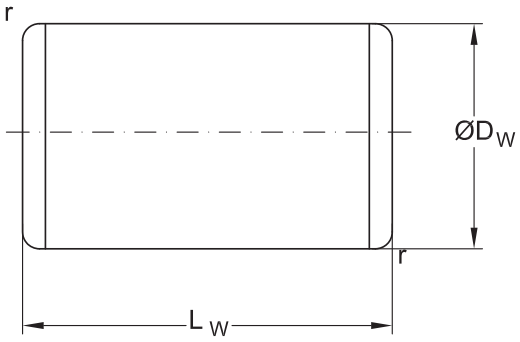
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
14	20	0,5	1,2	**RC 14X20**	0,024
	21	0,5	1,2	**RC 14X21**	0,025
	22	0,5	1,2	**RC 14X22**	0,026
	26	0,5	1,2	**RC 14X26**	0,031
	28	0,5	1,2	**RC 14X28**	0,033
	55	0,5	1,2	**RC 14X55**	0,066
14.287	79.375	0,5	1,2	**RC 14,2875X79,375**	0,099
14.376	63,5	0,5	1,2	**RC 14,376X63,5**	0,08
14.478	49.835	0,5	1,2	**RC 14,478X49,835**	0,064
14,5	30	0,5	1,2	**RC 14,5X30**	0,039
15	15	0,5	1,2	**RC 15X15**	0,02
	16	0,5	1,2	**RC 15X16**	0,022
	17	0,5	1,2	**RC 15X17**	0,023
	22	0,5	1,2	**RC 15X22**	0,03
	24	0,5	1,2	**RC 15X24**	0,033
	26	0,5	1,2	**RC 15X26**	0,036
	28	0,5	1,2	**RC 15X28**	0,039
	30	0,5	1,2	**RC 15X30**	0,041
	32	0,5	1,2	**RC 15X32**	0,042
15,8	17	0,5	1,2	**RC802876**	0,025
15.875	100	0,5	1,2	**RC 15,875X100**	0,155
	15.875	0,5	1,2	**RC 15,875X15,875**	0,024
	22.225	0,5	1,2	**RC 15,875X22,225**	0,03
	57,15	0,5	1,2	**RC 15,875X57,15**	0,088
	88,9	0,5	1,2	**RC 15,875X88,9**	0,138
	92,07	0,5	1,2	**RC 15,875X92,075**	0,143
16	16	0,7	1,5	**RC 16X16**	0,025

Cylindrical Rollers



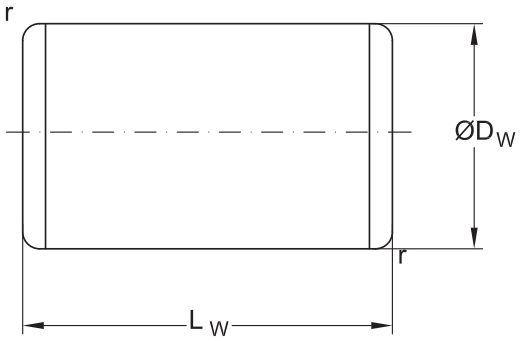
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
16	17	0,7	1,5	**RC 16X17**	0,027
	22	0,7	1,5	**RC 16X22**	0,034
	24	0,7	1,5	**RC 16X24**	0,037
	25	0,7	1,5	**RC 16X25**	0,038
	26	0,7	1,5	**RC 16X26**	0,041
	27	0,7	1,5	**RC 16X27**	0,042
	40	0,7	1,5	**RC 16X40 II**	0,063
16.002	63,5	0,7	1,5	**RC 16,002X63,5**	0,099
16.015	34,78	0,7	1,5	**RC 16,015X34,78**	0,055
16,5	24	0,7	1,5	**RC 16,5X24**	0,04
17	15,5	0,7	1,5	**RC 17x15,5**	0,027
	17	0,7	1,5	**RC 17X17**	0,03
	24	0,7	1,5	**RC 17X24**	0,042
	34	0,7	1,5	**RC 17X34**	0,06
	44	0,7	1,5	**RC 17X44**	0,078
17,3	38	0,7	1,5	**RC 17,3X38**	0,07
17,36	34,93	0,7	1,5	**RC 17,36X34,93**	0,065
18	18	0,7	1,5	**RC 18X18**	0,036
	19	0,7	1,5	**RC 18X19**	0,038
	26	0,7	1,5	**RC 18X26**	0,052
	30	0,7	1,5	**RC 18X30**	0,06
	32	0,7	1,5	**RC 18X32**	0,064
	36	0,7	1,5	**RC 18X36**	0,072
18,04	41,28	0,7	1,5	**RC 18,04X41,28**	0,082
18,3	114,3	0,7	1,5	**RC 18,3X114,3**	0,234
	21	0,7	1,5	**RC949453**	0,042
18,8	22,3	0,7	1,5	**RC 18,8X22,3**	0,047

Cylindrical Rollers



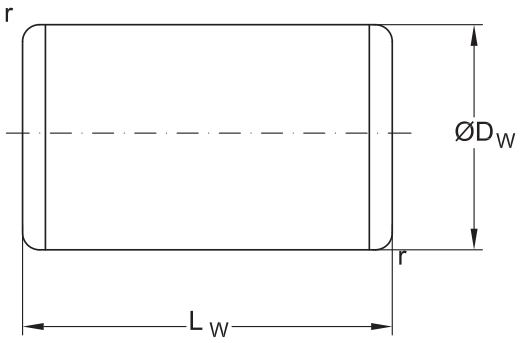
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
18,85	41,2	0,7	1,5	**RC 18,85X41,2**	0,09
19	19	0,7	1,5	**RC 19X19**	0,042
	20	0,7	1,5	**RC 19X20**	0,044
	22	0,7	1,5	**RC 19X22**	0,048
	26	0,7	1,5	**RC 19X26**	0,058
	27	0,7	1,5	**RC 19X27**	0,06
	28	0,7	1,5	**RC 19X28**	0,061
	30	0,7	1,5	**RC 19X30**	0,066
	32	0,7	1,5	**RC 19X32**	0,07
	38	0,7	1,5	**RC 19X38**	0,084
	39	0,7	1,5	**RC 19X39**	0,086
19,05	12,7	0,7	1,5	**RC 19,05X12,7**	0,028
	17,45	0,7	1,5	**RC 19,05X17,45**	0,039
	19.304	0,7	1,5	**RC 19,05X19,304**	0,043
	20.625	0,7	1,5	**RC 19,05X20,625**	0,046
	22,22	0,7	1,5	**RC 19,05X22,22**	0,05
	23,8	0,7	1,5	**RC 19,05X23,8**	0,053
	25,4	0,7	1,5	**RC 19,05X25,4**	0,057
	28,57	0,7	1,5	**RC 19,05X28,57**	0,064
	76,2	0,7	1,5	**RC 19,05X76,2**	0,17
19,5	21	0,7	1,5	**RC 19,5X21**	0,049
20	20	0,7	1,5	**RC 20X20**	0,049
	24	0,7	1,5	**RC 20X24**	0,06
	26	0,7	1,5	**RC 20X26**	0,064
	30	0,7	1,5	**RC 20X30**	0,073
	35	0,7	1,5	**RC 20X35**	0,086
	38	0,7	1,5	**RC 20X38**	0,093

Cylindrical Rollers



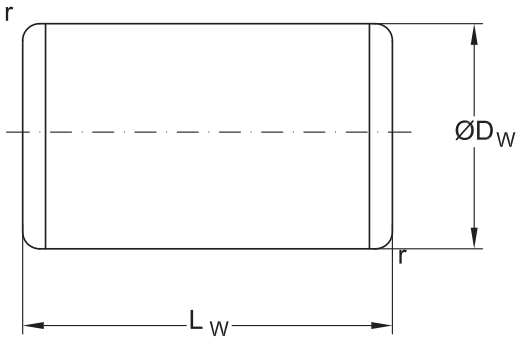
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
20	40	0,7	1,5	**RC 20X40**	0,098
	41	0,7	1,5	**RC 20X41**	0,1
	44,45	0,7	1,5	**RC 20X44,45**	0,109
	50	0,7	1,5	**RC 20X50**	0,123
21	21	0,7	1,5	**RC 21X21**	0,056
	22	0,7	1,5	**RC 21X22**	0,059
	23	0,7	1,5	**RC 21X23**	0,062
	26	0,7	1,5	**RC 21X26**	0,071
	30	0,7	1,5	**RC 21X30**	0,08
	32	0,7	1,5	**RC 21X32**	0,086
	34	0,7	1,5	**RC 21X34**	0,092
21,5	38	0,7	1,5	**RC 21,5X38**	0,108
21,59	50,8	0,7	1,5	**RC 21,59X50,8**	0,146
22	22	0,7	1,5	**RC 22X22**	0,064
	22,3	0,7	1,5	**RC 22X22,3**	0,066
	24	0,7	1,5	**RC 22X24**	0,071
	32	0,7	1,5	**RC 22X32**	0,095
	34	0,7	1,5	**RC 22X34**	0,1
	44	0,7	1,5	**RC 22X44**	0,108
	50	0,7	1,5	**RC 22X50**	0,149
	71	0,7	1,5	**RC 22X71**	0,212
	90	0,7	1,5	**RC 22X90**	0,268
22,22	11,18	0,7	1,5	**RC 22,22X11,18**	0,034
	13,97	0,7	1,5	**RC 22,22X13,97**	0,042
	15,87	0,7	1,5	**RC 22,22X15,87**	0,048
	19,05	0,7	1,5	**RC 22,22X19,05**	0,058
	22,22	0,7	1,5	**RC 22,22X22,22**	0,067

Cylindrical Rollers



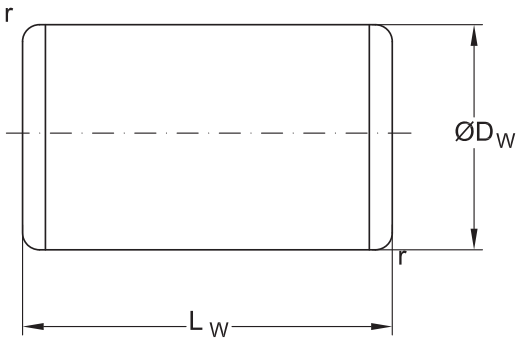
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
22.225	37.593	0,7	1,5	**RC 22,225X37,593**	0,114
	50,8	0,7	1,5	**RC 22,225X50,8**	0,154
22,45	57	0,7	1,5	**RC 22,45X57**	0,117
22,5	40	0,7	1,5	**RC 22,5X40**	0,124
23	23	0,7	1,5	**RC 23X23**	0,074
	24	0,7	1,5	**RC 23X24**	0,078
	32	0,7	1,5	**RC 23X32**	0,104
	34	0,7	1,5	**RC 23X34**	0,112
	48	0,7	1,5	**RC 23X48**	0,155
23,7	29,5	0,7	1,5	**RC825160**	0,1
23,78	64.325	0,7	1,5	**RC 23,78X64,325**	0,224
23,8	25,4	0,7	1,5	**RC 23,81X25,4**	0,088
24	24	1,1	2,1	**RC 24X24**	0,084
	26	1,1	2,1	**RC 24X26**	0,092
	34	1,1	2,1	**RC 24X34**	0,12
	36	1,1	2,1	**RC 24X36**	0,126
	36,5	1,1	2,1	**RC 24X36,5**	0,129
	38	1,1	2,1	**RC 24X38**	0,134
	48	1,1	2,1	**RC 24X48**	0,175
	52	1,1	2,1	**RC 24X52**	0,18
	56	1,1	2,1	**RC 24X56**	0,196
25	25	1,1	2,1	**RC 25X25**	0,095
	27	1,1	2,1	**RC 25X27**	0,103
	32	1,1	2,1	**RC 25X32**	0,123
	35	1,1	2,1	**RC 25x35**	0,133
	36	1,1	2,1	**RC 25X36**	0,137
	40	1,1	2,1	**RC 25X40**	0,154

Cylindrical Rollers



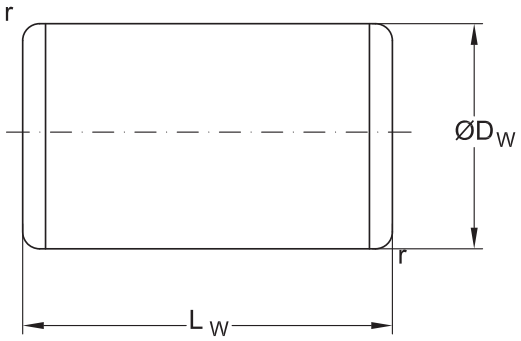
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
25	50	1,1	2,1	**RC 25X50**	0,16
25,4	25,4	1,1	2,1	**RC 25,4X25,4**	0,1
	27,5	1,1	2,1	**RC 25,4X27,5**	0,109
	28,58	1,1	2,1	**RC 25,4X28,58**	0,113
	38,1	1,1	2,1	**RC 25,4X38,1**	0,15
	50,8	1,1	2,1	**RC 25,4X50,8**	0,202
	57,15	1,1	2,1	**RC 25,4X57,15**	0,227
	76,2	1,1	2,1	**RC 25,4X76,2**	0,303
25,5	38,5	1,1	2,1	**RC 25,5X38,5**	0,154
25,8	25,8	1,1	2,1	**RC 25,8X25,8**	0,106
	60	1,1	2,1	**RC 25,8X60**	0,246
25,93	25,4	1,1	2,1	**RC 25,93X25,4**	0,105
25,98	54,76	1,1	2,1	**RC 25,98X54,76**	0,228
26	26	1,1	2,1	**RC 26X26**	0,107
	28	1,1	2,1	**RC 26X28**	0,116
	30	1,1	2,1	**RC 26X30**	0,124
	40	1,1	2,1	**RC 26X40**	0,164
	45	1,1	2,1	**RC 26X45**	0,187
	55	1,1	2,1	**RC 26X55**	0,226
	61	1,1	2,1	**RC 26X61**	0,254
	78	1,1	2,1	**RC 26X78**	0,326
27	26,5	1,1	2,1	**RC 27X26,5**	0,119
	46	1,1	2,1	**RC 27X46**	0,205
	48	1,1	2,1	**RC 27X48**	0,204
	50	1,1	2,1	**RC 27X50**	0,224
27,05	48	1,1	2,1	**RC 27,05x48**	0,213
28	22	1,1	2,1	**RC 28X22**	0,104

Cylindrical Rollers



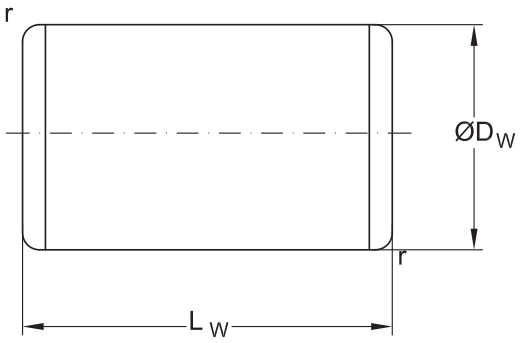
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
28	28	1,1	2,1	**RC 28X28**	0,133
	30	1,1	2,1	**RC 28X30**	0,144
	40	1,1	2,1	**RC 28X40**	0,193
	44	1,1	2,1	**RC 28X44**	0,21
	50	1,1	2,1	**RC 28X50**	0,241
	56	1,1	2,1	**RC 28X56**	0,27
	58	1,1	2,1	**RC 28X58**	0,28
	70	1,1	2,1	**RC 28X70**	0,338
28,24	28,57	1,1	2,1	**RC 28,24X28,57**	0,14
28,5	42	1,1	2,1	**RC 28,5X42**	0,17
28,57	63,5	1,1	2,1	**RC 28,57X63,5**	0,319
	69,85	1,1	2,1	**RC 28,57X69,85**	0,351
28.575	31,75	1,1	2,1	**RC 28,575X31,75**	0,158
	44,45	1,1	2,1	**RC 28,575X44,45**	0,223
28,9	69,85	1,1	2,1	**RC 28,6X69,85**	0,352
29	28,45	1,1	2,1	**RC 29X28,45**	0,146
	47,5	1,1	2,1	**RC 29X47,5**	0,246
	47,5	1,1	2,1	**RC 29X47,5**	0,218
29,4	29,1	1,1	2,1	**RC 29,4X29,1**	0,156
29,74	69,72	1,1	2,1	**RC 29,74X69,72**	0,38
30	30	1,1	2,1	**RC 30X30**	0,163
	33	1,1	2,1	**RC 30X33**	0,183
	36	1,1	2,1	**RC 30X36**	0,198
	48	1,1	2,1	**RC 30X48**	0,262
	52	1,1	2,1	**RC 30X52**	0,28
	60	1,1	2,1	**RC 30X60**	0,332
30,05	48	1,1	2,1	**RC 30,05x48**	0,266

Cylindrical Rollers



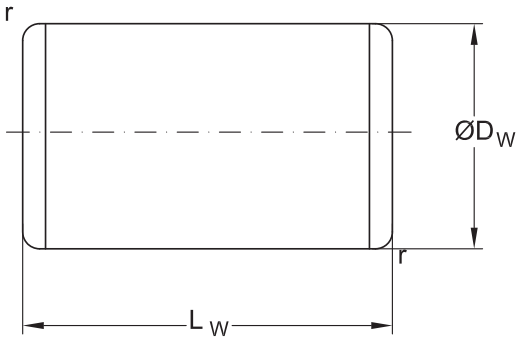
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
30,16	34.925	1,1	2,1	**RC 30,16X34,925**	0,17
	63,5	1,1	2,1	**RC 30,16X63,5**	0,325
31	68	1,1	2,1	**RC 31X68 S1**	0,399
	72	1,1	2,1	**RC 31X72**	0,425
31,75	25,4	1,1	2,1	**RC 31,75X25,4**	0,157
	31,75	1,1	2,1	**RC 31,75X31,75**	0,195
	41.275	1,1	2,1	**RC 31,75X41,275**	0,256
	48	1,1	2,1	**RC 31,75X48**	0,297
	52,53	1,1	2,1	**RC 31,75X52,53**	0,326
	53,98	1,1	2,1	**RC 31,75X53,98**	0,335
	76,2	1,1	2,1	**RC 31,75X76,2**	0,473
32	32	1,5	2,7	**RC 32X32**	0,199
	47,6	1,5	2,7	**RC 32X47,6**	0,298
	48	1,5	2,7	**RC 32X48**	0,302
	48,5	1,5	2,7	**RC 32X48,5**	0,306
	50	1,5	2,7	**RC 32X50**	0,315
	52	1,5	2,7	**RC 32X52**	0,326
	96	1,5	2,7	**RC 32X96**	0,606
	72	1,5	2,7	**RC 32X72**	0,543
32,36	73,38	1,5	2,7	**RC 32,26X73,38**	0,47
32,5	65	1,5	2,7	**RC 32,5X65**	0,405
33	50	1,5	2,7	**RC 33X50**	0,335
33,3	34.925	1,5	2,7	**RC 33,3X34,925**	0,238
33,35	57	1,5	2,7	**RC 33,35X57**	0,391
33,6	41	1,5	2,7	**RC764075**	0,276
34	34	1,5	2,7	**RC 34X34**	0,239
	55	1,5	2,7	**RC 34X55**	0,387

Cylindrical Rollers



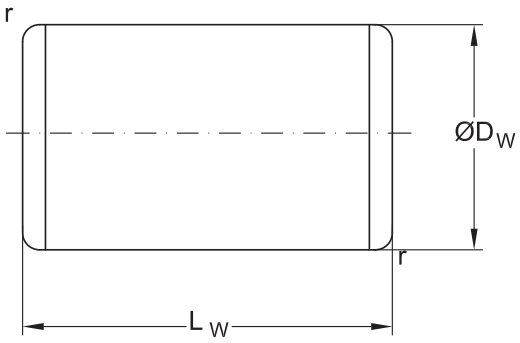
Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
34	74	1,5	2,7	**RC 34X74**	0,526
	76	1,5	2,7	**RC 34X76**	0,54
34,46	83	1,5	2,7	**RC 34,46X83**	0,607
35	143	1,5	2,7	**RC 35X143**	1
	33,5	1,5	2,7	**RC 35X33,5**	0,252
	46	1,5	2,7	**RC 35X46**	0,345
	70	1,5	2,7	**RC 35X70**	0,528
36	36	1,5	2,7	**RC 36X36**	0,283
	58	1,5	2,7	**RC 36X58**	0,457
	72	1,5	2,7	**RC 36X72**	0,575
	74	1,5	2,7	**RC 36X74**	0,583
37	82	1,5	2,7	**RC 37X82**	0,69
37,5	125	1,5	2,7	**RC 37,5X125**	1.084
	77	1,5	2,7	**RC 37,5X77**	0,667
	85	1,5	2,7	**RC 37,5X85**	0,737
38	38	1,5	2,7	**RC 38X38**	0,333
	41	1,5	2,7	**RC 38X41**	0,365
	47	1,5	2,7	**RC 38X47**	0,418
	54	1,5	2,7	**RC 38X54**	0,48
	55	1,5	2,7	**RC 38X55**	0,488
	62	1,5	2,7	**RC 38X62**	0,55
	65	1,5	2,7	**RC 38X65**	0,57
	80	1,5	2,7	**RC 38X80**	0,712
	84	1,5	2,7	**RC 38X84**	0,75
	86	1,5	2,7	**RC 38X86**	0,764
38,1	44,45	1,5	2,7	**RC 38,1X44,45**	0,396
38,86	63,5	1,5	2,7	**RC 38,86X63,5**	0,59

Cylindrical Rollers



Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
38,86	76	1,5	2,7	**RC 38,86X76**	0,707
39	59	1,5	2,7	**RC 39X59**	0,552
40	40	1,5	2,7	**RC 40X40**	0,389
	43	1,5	2,7	**RC 40X43**	0,42
	65	1,5	2,7	**RC 40X65**	0,63
	70	1,5	2,7	**RC 40X70**	0,688
	85	1,5	2,7	**RC 40X85**	0,837
40,6	42,6	1,5	2,7	**RC 40,6X42,6**	0,425
41	78	1,5	2,7	**RC 41X78**	0,807
42	42	1,5	2,7	**RC 42X42**	0,457
	72	1,5	2,7	**RC 42X72**	0,76
	85	1,5	2,7	**RC 42X85**	0,923
42,1	65	1,5	2,7	**RC 42,1x65**	0,708
43,3	90	1,5	2,7	**RC 43,3X90**	1.039
44,5	66,6	1,5	2,7	**RC 44,5X66,6**	0,81
45	32	1,5	2,7	**RC 45X32**	0,399
	45	1,5	2,7	**RC 45X45**	0,562
	48	1,5	2,7	**RC 45X48**	0,6
	75	1,5	2,7	**RC 45X75**	0,936
	90	1,5	2,7	**RC 45X90**	1.122
45,83	45	1,5	2,7	**RC 45,83x45**	0,126
48	48	1,5	2,7	**RC 48X48**	0,682
	72	1,5	2,7	**RC 48X72**	1.022
	80	1,5	2,7	**RC 48X80**	1.133
49	85	1,5	2,7	**RC 49X85**	1.256
	88	1,5	2,7	**RC 49X88**	1,3
50	108	2,5	4	**RC 50X108**	1,66

Cylindrical Rollers



Dimensions				Designation	Mass
D_w	L_w	r_{min}	r_{max}		
mm					Kg
50	49	2,5	4	**RC 50X49**	0,753
	50	2,5	4	**RC 50X50**	0,77
	85	2,5	4	**RC 50X85**	1,3
50,8	85.725	2,5	4	**RC 50,8X85,725**	1.362
51	108	2,5	4	**RC 51X108**	1.732
	36,5	2,5	4	**RC 51X36,5**	0,582
	42,5	2,5	4	**RC 51X42,5**	0,681
	49	2,5	4	**RC 51X49**	0,785
52	52	2,5	4	**RC 52X52**	0,865
54	54	2,5	4	**RC 54X54**	0,97
	56	2,5	4	**RC 54X56**	1.006
	95	2,5	4	**RC 54X95**	1,7
56	100	2,5	4	**RC 56X100**	1.909
	56	2,5	4	**RC 56X56**	1.078
58	90	2,5	4	**RC 58X90**	1.867
60	100	2,5	4	**RC 60X100**	2.214
63,45	36	2,5	4	**RC 63,45X36**	0,888
	42,6	2,5	4	**RC 63,45X42,6**	1.052
	46	2,5	4	**RC 63,45X46**	1.136
	48,8	2,5	4	**RC 63,45X48,8**	1.205
68	105	2,5	4	**RC 68X105**	2.957
75	120	2,5	4	**RC 75X120**	4.154
76	110	2,5	4	**RC 76X110**	3,91
80	125	2,5	4	**RC 80X125**	4,9

Adapter and Withdrawal Sleeves

General

Adapter and Withdrawal Sleeves are devices using to mount and secure rolling element bearings with tapered bores onto cylindrical shaft seats.

This enables the mounting or dismounting of rolling element bearings in a simple and effective way to for a variety of applications.

Since, adapter and withdrawal sleeves are able to adapt to shaft diameter variations within certain limits, larger than normal **shaft diameter tolerances** are accomodated.

The **geometrical accuracy**, however, must be more closely defined, as the forms errors of the shaft affect the running accuracy of the total bearing arrangement in a direct way.

Furthermore, using adapter or withdrawal sleeves allows bearing seats with lower surface qualities, (e.g. turned surfaces) to be acceptable. For applications where no accurate shaft guidance of bearings is required, bright drawn round bar stock may also be used.

Generally the following tolerances may be used for guidance:

Expected running accuracy	Diameter tolerance	Form accuracy
Normal	h7, h8, h9	$\frac{IT5}{2}$
Low	h10, h11	$\frac{IT7}{2}$

Adapter sleeves

Standards, boundary, dimensions

Adapter Sleeves	DIN 5415

General

Adapter sleeves (see sketch below) are slotted steel sleeves that have a tapered outer diameter, taper 1:12 on one side and a thread on the opposite side.

Small adapter sleeves may have phosphated surfaces, normally they are only oil preserved.

URB adapter sleeves are supplied complete with lock nut and locking washer as standard.

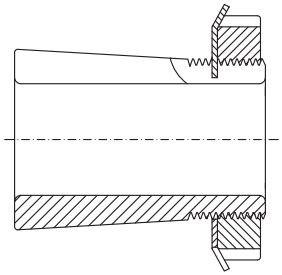
Beside the standard design (see figure **a**), there are also larger adapter sleeves available with oil bores and oil distribution ducs, (prefix **OH**) as required for applying the oil injection method as shown in figure **b**.

On smooth straight shafts, (e.g. on a drawn round stock), adapter sleeves allow a simple positioning of bearings in any position, (see figure c).

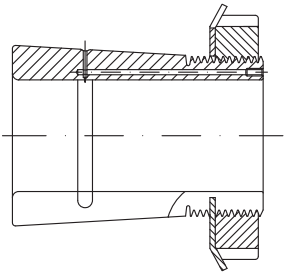
In applications where bearings with adapter sleeves are mounted on straight shafts without axial support, (see figure c), their ability to accept axial forces is limited by the friction between the adapter sleeve and the shaft.

In the case of higher axial forces, the bearing needs to be secured additionaly by **supporting rings** (see figure **d**).

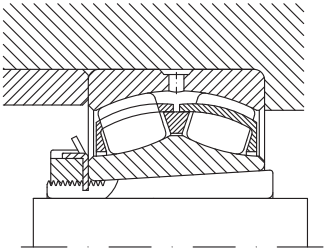
When designing such supporting rings, however, the abutment dimensions recommended by the product tables must be considered.



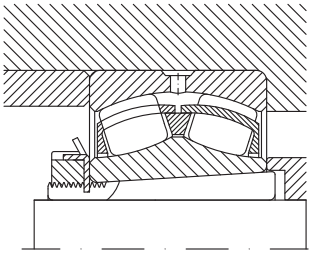
a



b



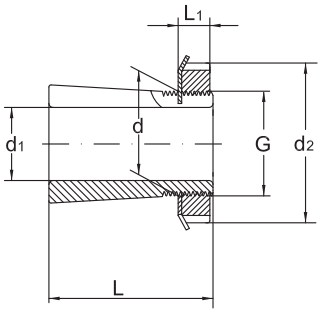
c

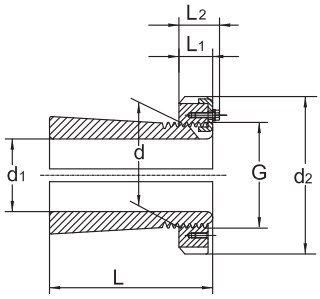


d


URB

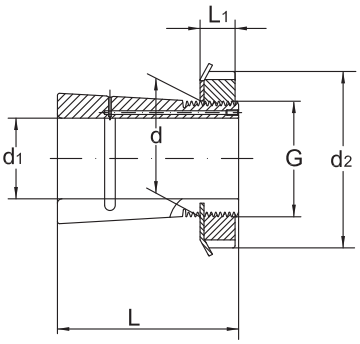
Adapter sleeves

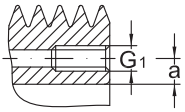




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
17	20	32	24	**H204**	0,04
		32	28	**H304**	0,04
		32	31	**H2304**	0,05
20	25	38	26	**H205**	0,06
		38	29	**H305**	0,07
		38	35	**H2305**	0,09
25	30	45	27	**H206**	0,09
		45	31	**H306**	0,10
		45	38	**H2306**	0,11
30	35	52	29	**H207**	0,12
		52	35	**H307**	0,14
		52	43	**H2307**	0,15
35	40	58	31	**H208**	0,16
		58	36	**H308**	0,18
		58	46	**H2308**	0,22
40	45	65	33	**H209**	0,21
		65	39	**H309**	0,23
		65	50	**H2309**	0,27
45	50	70	35	**H210**	0,24
		70	42	**H310**	0,27
		70	55	**H2310**	0,34
50	55	75	37	**H211**	0,28
		75	45	**H311**	0,32
		75	59	**H2311**	0,39

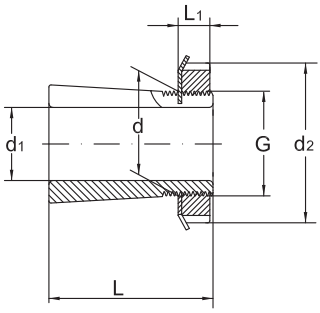
Adapter sleeves

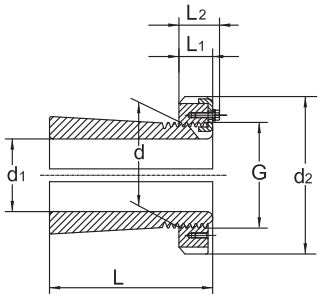




Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
	M 20 X 1	7	-	-	-	KM4	MB4
17	M 20 X 1	7	-	-	-	KM4	MB4
	M 20 X 1	7	-	-	-	KM4	MB4
	M 25 X 1,5	8	-	-	-	KM5	MB5
20	M 25 X 1,5	8	-	-	-	KM5	MB5
	M 25 X 1,5	8	-	-	-	KM5	MB5
	M 30 X 1,5	8	-	-	-	KM6	MB6
25	M 30 X 1,5	8	-	-	-	KM6	MB6
	M 30 X 1,5	8	-	-	-	KM6	MB6
	M 35 X 1,5	9	-	-	-	KM7	MB7
30	M 35 X 1,5	9	-	-	-	KM7	MB7
	M 35 X 1,5	9	-	-	-	KM7	MB7
	M 40 X 1,5	10	-	-	-	KM8	MB8
35	M 40 X 1,5	10	-	-	-	KM8	MB8
	M 40 X 1,5	10	-	-	-	KM8	MB8
	M 45 X 1,5	11	-	-	-	KM9	MB9
40	M 45 X 1,5	11	-	-	-	KM9	MB9
	M 45 X 1,5	11	-	-	-	KM9	MB9
	M 50 X 1,5	12	-	-	-	KM10	MB10
45	M 50 X 1,5	12	-	-	-	KM10	MB10
	M 50 X 1,5	12	-	-	-	KM10	MB10
	M 55 X 2	12,5	-	-	-	KM11	MB11
50	M 55 X 2	12,5	-	-	-	KM11	MB11
	M 55 X 2	12,5	-	-	-	KM11	MB11

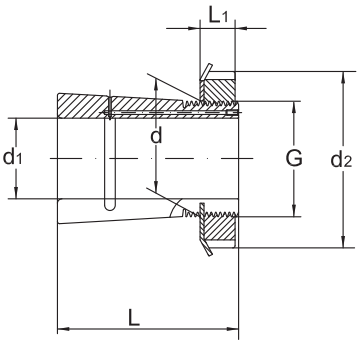
Adapter sleeves

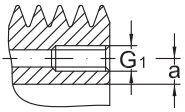




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
55	60	80	38	**H212**	0,31
		80	47	**H312**	0,35
		80	62	**H2312**	0,45
60	65	85	40	**H213**	0,36
		85	50	**H313**	0,42
		85	65	**H2313**	0,52
	70	92	52	**H314**	0,68
		92	68	**H2314**	0,88
65	75	98	43	**H215**	0,66
		98	55	**H315**	0,78
		98	73	**H2315**	1,1
70	80	105	46	**H216**	0,81
		105	59	**H316**	0,95
		105	78	**H2316**	1,2
75	85	110	50	**H217**	0,94
		110	63	**H317**	1,1
		110	82	**H2317**	1,35
80	90	120	52	**H218**	1,1
		120	65	**H318**	1,3
		120	86	**H2318**	1,6
85	95	125	55	**H219**	1,25
		125	68	**H319**	1,4
		125	90	**H2319**	1,8
90	100	130	58	**H220**	1,4

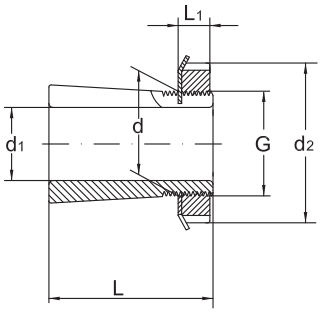
Adapter sleeves

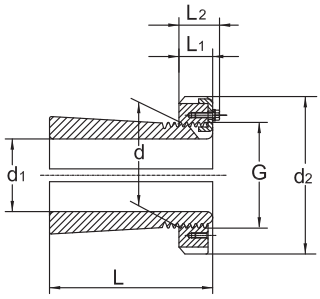




Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
	M 60 X 2	13	-	-	-	KM12	MB 12
55	M 60 X 2	13	-	-	-	KM12	MB12
	M 60 X 2	13	-	-	-	KM12	MB12
	M 65 X 2	14	-	-	-	KM13	MB13
	M 65 X 2	14	-	-	-	KM13	MB13
60	M 65 X 2	14	-	-	-	KM13	MB13
	M 70 X 2	14	-	-	-	KM14	MB14
	M 70 X 2	14	-	-	-	KM14	MB14
	M 75 X 2	15	-	-	-	KM15	MB15
65	M 75 X 2	15	-	-	-	KM15	MB15
	M 75 X 2	15	-	-	-	KM15	MB15
	M 80 X 2	17	-	-	-	KM16	MB16
70	M 80 X 2	17	-	-	-	KM16	MB16
	M 80 X 2	17	-	-	-	KM16	MB16
	M 85 X 2	18	-	-	-	KM17	MB17
75	M 85 X 2	18	-	-	-	KM17	MB17
	M 85 X 2	18	-	-	-	KM17	MB17
	M 90 X 2	18	-	-	-	KM18	MB18
80	M 90 X 2	18	-	-	-	KM18	MB18
	M 90 X 2	18	-	-	-	KM18	MB18
	M 95 X 2	19	-	-	-	KM19	MB19
85	M 95 X 2	19	-	-	-	KM19	MB19
	M 95 X 2	19	-	-	-	KM19	MB19
90	M 100 X 2	20	-	-	-	KM20	MB20

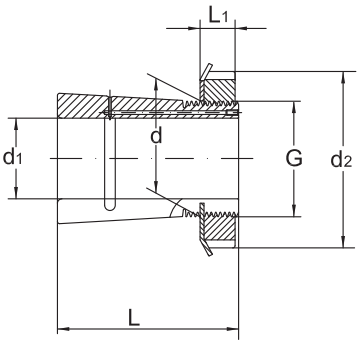
Adapter sleeves

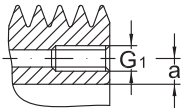




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
90	100	130	71	**H320**	1,6
		130	97	**H2320**	2
		130	76	**H3120**	1,8
95	105	140	60	**H221**	1,6
		140	74	**H321**	1,85
100	110	145	63	**H222**	1,8
		145	77	**H322**	2,05
		145	105	**H2322**	2,75
		145	81	**H3122**	2,1
110	120	155	112	**H2324**	3
		145	72	**H3024**	1,8
		155	88	**H3124**	2,5
115	130	165	121	**H2326**	4,45
		155	80	**H3026**	2,8
		165	92	**H3126**	3,45
125	140	180	131	**H2328**	5,4
		165	82	**H3028**	3,05
		180	97	**H3128**	4,1
135	150	195	139	**H2330**	6,4
		180	87	**H3030**	3,75
		195	111	**H3130**	5,25
140	160	210	147	**H2332**	8,8
		210	147	**OH2332 H**	8,8
		190	93	**H3032**	5,1

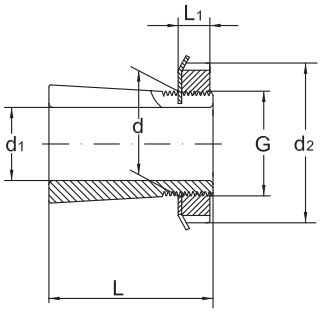
Adapter sleeves

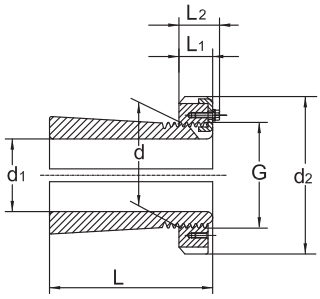




Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
90	M 100 X 2	20	-	-	-	KM20	MB20
	M 100 X 2	20	-	-	-	KM20	MB20
	M 100 X 2	20	-	-	-	KM20	MB20
95	M 105 X 2	20	-	-	-	KM21	MB21
	M 105 X 2	20	-	-	-	KM21	MB21
100	M 110 X 2	21	-	-	-	KM22	MB22
	M 110 X 2	21	-	-	-	KM22	MB22
	M 110 X 2	21	-	-	-	KM22	MB22
	M 110 X 2	31	-	-	-	KM22	MB22
110	M 120 X 2	22	-	-	-	KM24	MB24
	M 120 X 2	22	-	-	-	KML24	MBL24
	M 120 X 2	22	-	-	-	KM24	MB24
115	M 130 X 2	23	-	-	-	KM26	MB26
	M 130 X 2	23	-	-	-	KML26	MBL26
	M 130 X 2	23	-	-	-	KM26	MB26
125	M 140 X 2	24	-	-	-	KM28	MB28
	M 140 X 2	24	-	-	-	KML28	MBL28
	M 140 X 2	24	-	-	-	KM28	MB28
135	M 150 X 2	26	-	-	-	KM30	MB30
	M 150 X 2	26	-	-	-	KML30	MBL30
	M 150 X 2	26	-	-	-	KM30	MB30
140	M 160 X 3	28	-	-	-	KM32	MB32
	M 160 X 3	28	-	M 6	4,2	KM32	MB32
	M 160 X 3	27,5	-	-	-	KML32	MBL32

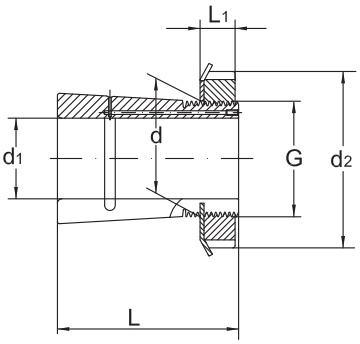
Adapter sleeves

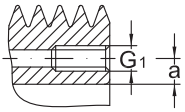




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
140	160	190	93	**OH3032 H**	5,1
		210	119	**H3132**	7,25
		210	119	**OH3132 H**	7,25
150	170	220	154	**H2334**	9,9
		220	154	**OH2334 H**	9,9
		200	101	**H3034**	5,8
		200	101	**OH3034 H**	5,8
		220	101	**H3134**	8,1
		220	122	**OH3134 H**	8,1
160	180	230	161	**H2336**	11
		230	161	**OH2336 H**	11
		210	109	**H3036**	6,7
		210	109	**OH3036 H**	6,7
		230	131	**H3136**	9,15
		230	131	**OH3136 H**	9,15
170	190	240	169	**H2338**	12
		240	169	**OH2338 H**	12
		220	112	**H3038**	7,25
		220	112	**OH3038 H**	7,25
		240	141	**H3138**	10,5
		240	141	**OH3138 H**	10,5
180	200	250	176	**H2340**	13,5
		250	176	**OH2340 H**	13,5
		240	120	**H3040**	8,9

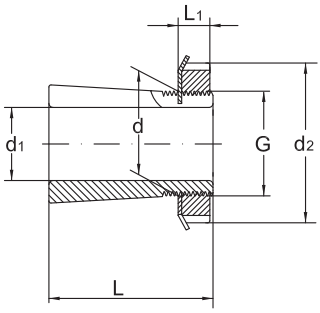
Adapter sleeves

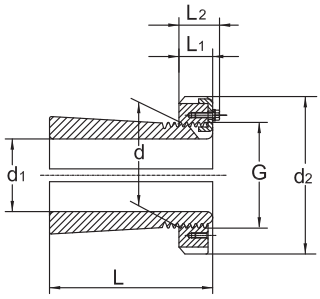




Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
140	M 160 X 3	27,5	-	M 6	4,2	KML32	MBL32
	M 160 X 3	28	-	-	-	KM32	MB32
	M 160 X 3	28	-	M 6	4,2	KM32	MB32
150	M 170 X 3	29	-	-	-	KM34	MB34
	M 170 X 3	29	-	M 6	4,2	KM34	MB34
	M 170 X 3	28,5	-	-	-	KML34	MBL34
	M 170 X 3	28,5	-	M 6	4,2	KML34	MBL34
	M 170 X 3	29	-	-	-	KM34	MB34
	M 170 X 3	29	-	M 6	4,2	KM34	MB34
160	M 180 X 3	30	-	-	-	KM36	MB36
	M 180 X 3	30	-	M 6	4,2	KM36	MB36
	M 180 X 3	29,5	-	-	-	KML36	MBL36
	M 180 X 3	29,5	-	M 6	4,2	KML36	MBL36
	M 180 X 3	30	-	-	-	KM36	MB36
	M 180 X 3	30	-	M 6	4,2	KM36	MB36
170	M 190 X 3	31	-	-	-	KM38	MB38
	M 190 X 3	31	-	M 6	4,2	KM38	MB38
	M 190 X 3	30,5	-	-	-	KML38	MBL38
	M 190 X 3	30,5	-	M 6	4,2	KML38	MBL38
	M 190 X 3	31	-	-	-	KM38	MB38
	M 190 X 3	31	-	M 6	4,2	KM38	MB38
180	M 200 X 3	32	-	-	-	KM40	MB40
	M 200 X 3	32	-	M 6	4,2	KM40	MB40
	M 200 X 3	31,5	-	-	-	KML40	MBL40

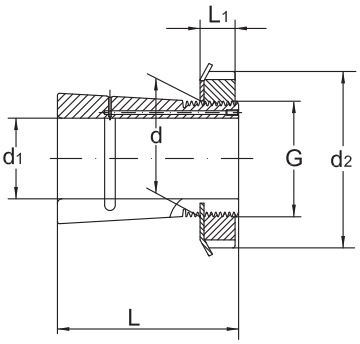
Adapter sleeves

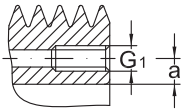




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
180	200	240	120	**OH3040 H**	8,9
		250	150	**H3140**	12
		250	150	**OH3140H**	12
200	220	280	186	**H2344**	17
		280	186	**OH2344 H**	17
		260	126	**H3044**	9,9
		260	126	**OH3044 H**	9,9
		280	161	**H3144**	15
		280	161	**OH3144 H**	15
220	240	300	199	**H2348**	19
		300	199	**OH2348 H**	19
		290	133	**H3048**	12
		290	133	**OH3048 H**	12
		300	172	**H3148**	16
		300	172	**OH3148 H**	16
240	260	330	211	**H2352**	23
		330	211	**OH2352 H**	23
		310	145	**H3052**	13,5
		310	145	**OH3052 H**	13,5
		330	190	**H3152**	21
		330	190	**OH3152 H**	21
260	280	350	224	**H2356**	27
		350	224	**OH2356 H**	27
		330	152	**H3056**	16

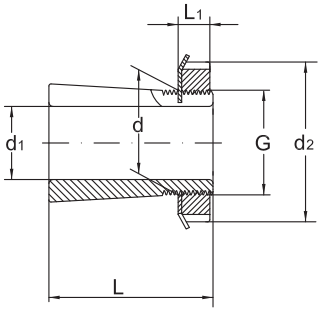
Adapter sleeves

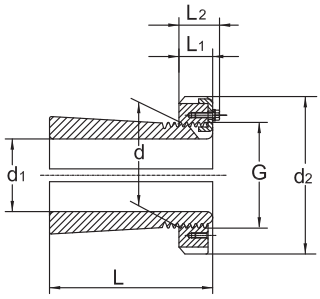




Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
180	M 200 X 3	31,5	-	M6	4,2	KML40	MBL40
	M 200 X 3	32	-	-	-	KM40	MB40
	M 200 X 3	32	-	M6	4,2	KM40	MB40
200	Tr 220 X 4	35	-	-	-	HM44 T	MB44
	Tr 220 X 4	35	-	M6	4,2	HM44 T	MB44
	Tr 220 X 4	30	41	-	-	HM3044	MS3044
	Tr 220 X 4	30	41	M6	4,2	HM3044	MS3044
	Tr 220 X 4	35	-	-	-	HM44 T	MB44
	Tr 220 X 4	35	-	M6	4,2	HM44 T	MB44
220	Tr 240 X 4	37	-	-	-	HM48 T	MB48
	Tr 240 X 4	37	-	M6	4,2	HM48 T	MB48
	Tr 240 X 4	34	46	-	-	HM3048	MS3052-48
	Tr 240 X 4	34	46	M6	4,2	HM3048	MS3052-48
	Tr 240 X 4	37	-	-	-	HM48 T	MB48
	Tr 240 X 4	37	-	M6	4,2	HM48 T	MB48
240	Tr 260 X 4	39	-	-	-	HM52 T	MB52
	Tr 260 X 4	39	-	M6	4,2	HM52 T	MB52
	Tr 260 X 4	34	46	-	-	HM3052	MS3052-48
	Tr 260 X 4	34	46	M6	4,2	HM3052	MS3052-48
	Tr 260 X 4	39	-	-	-	HM52 T	MB52
	Tr 280 X 4	39	-	M6	4,2	HM52 T	MB52
260	Tr 280 X 4	41	-	-	-	HM56 T	MB56
	Tr 280 X 4	41	-	M6	4,2	HM56 T	MB56
	Tr 280 X 4	38	50	-	-	HM3056	MS3056

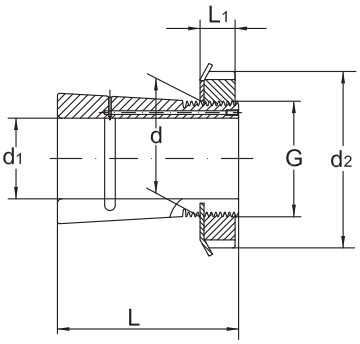
Adapter sleeves

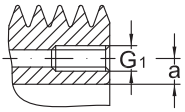




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
260	280	330	152	**OH3056 H**	16
		350	195	**H3156**	23
		350	195	**OH3156 H**	23
280	300	360	168	**H3060**	20,5
		360	168	**OH3060 H**	20,5
		380	208	**H3160**	29
		380	208	**OH3160 H**	29
		380	240	**H3260**	32
		380	240	**OH3260 H**	32
300	320	380	171	**H3064**	22
		380	171	**OH3064 H**	22
		400	226	**H3164**	32
		400	226	**OH3164 H**	32
		400	258	**H3264**	35
		400	258	**OH3264 H**	35
320	340	400	187	**H3068**	27
		400	187	**OH3068 H**	27
		440	254	**H3168**	50
		440	254	**OH3168 H**	50
		440	288	**H3268**	51,5
		440	288	**OH3268**	51,5
340	360	420	188	**H3072**	29
		420	188	**OH3072 H**	29
		460	259	**H3172**	56

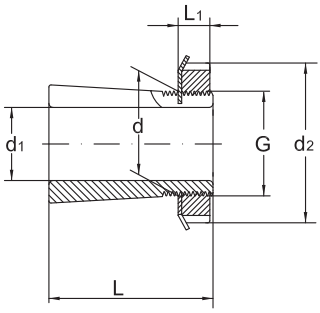
Adapter sleeves

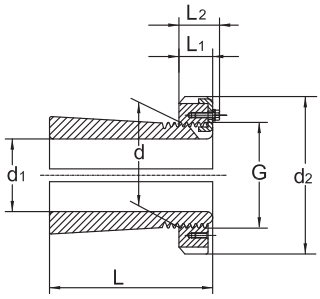




Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
260	Tr 280 X 4	38	50	M6	4,2	HM3056	MS3056
	Tr 280 X 4	41	-	-	-	HM56 T	MB56
	Tr 280 X 4	41	-	M6	4,2	HM56 T	MB56
280	Tr 300 X 4	42	54	-	-	HM3060	MS3060
	Tr 300 X 4	42	54	M6	4,2	HM3060	MS3060
	Tr 300 X 4	40	53	-	-	HM3160	MS3160
	Tr 300 X 4	40	53	M6	4,2	HM3460	MS3460
	Tr 300 X 4	40	53	-	-	HM3160	MS3160
	Tr 300 X 4	40	53	M6	4,2	HM3160	MS3160
300	Tr 320 X 5	42	55	-	-	HM3064	MS3068-64
	Tr 320 X 5	42	55	M6	4	HM3064	MS3068-64
	Tr 320 X 5	42	56	-	-	HM3164	MS3164
	Tr 320 X 5	42	56	M6	4	HM3164	MS3164
	Tr 320 X 5	42	56	-	-	HM3164	MS3164
	Tr 320 X 5	42	56	M6	4	HM3164	MS3164
320	Tr 340 X 5	45	58	-	-	HM3068	MS3068-64
	Tr 340 X 5	45	58	M6	4	HM3068	MS3068-64
	Tr 340 X 5	55	72	-	-	HM3168	MS3172-68
	Tr 340 X 5	55	72	M6	4	HM3168	MS3172-68
	Tr 340 X 5	55	72	-	-	HM3168	MS3172-68
	Tr 340 X 5	55	72	M6	4	HM3168	MS3172-68
340	Tr 360 X 5	45	58	-	-	HM3072	MS3072
	Tr 360 X 5	45	58	M6	4	HM3072	MS3072
	Tr 360 X 5	58	75	-	-	HM3172	MS3172-68

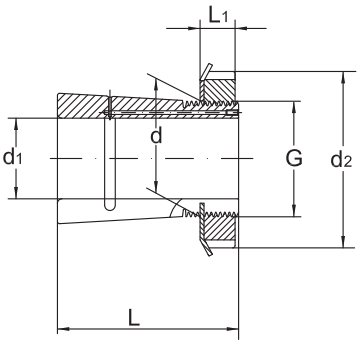
Adapter sleeves

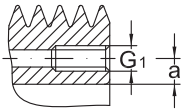




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
340	360	460	259	**OH3172 H**	56
		460	299	**H3272**	60,5
		460	299	**OH3272 H**	60,5
360	380	450	193	**H3076**	35,5
		450	193	**OH3076 H**	35,5
		490	264	**H3176**	61,5
		490	264	**OH3176 H**	61,5
		490	310	**H3276**	69,5
		490	310	**OH3276 H**	69,5
380	400	470	210	**H3080**	40
		470	210	**OH3080 H**	40
		520	272	**H3180**	73
		520	272	**OH3180 H**	73
400	420	490	212	**H3084**	47
		490	212	**OH3084 H**	47
		540	304	**H3184**	80
		540	304	**OH3184 H**	80
410	440	520	228	**H3088**	65
		520	228	**OH3088 H**	65
		560	307	**H3188**	95
		560	307	**OH3188 H**	95
430	460	540	234	**H3092**	71
		540	234	**OH3092 H**	71
		580	326	**H3192**	119

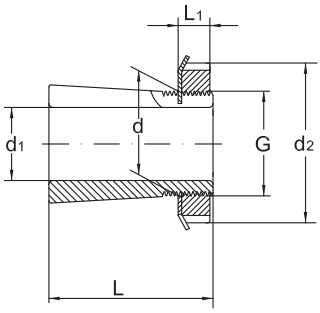
Adapter sleeves

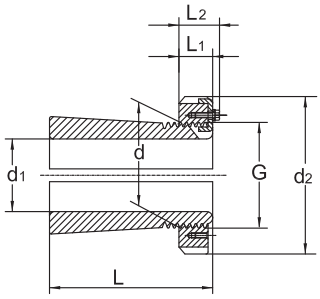




Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
340	Tr 360 X 5	58	75	M6	4	HM3172	MS3172-68
	Tr 360 X 5	58	75	-	-	HM3172	MS3172-68
	Tr 360 X 5	58	75	-	10	HM3172	MS3172-68
360	Tr 380 X 5	48	62	-		HM3076	MS3080-76
	Tr 380 X 5	48	62	M6	4	HM3076	MS3080-76
	Tr 380 X 5	60	77	-	-	HM3176	MS3176
	Tr 380 X 5	60	77	M6	4	HM3176	MS3176
	Tr 380 X 5	60	77	-	-	HM3176	MS3176
	Tr 380 X 5	60	77	-	10,5	HM3176	MS3176
380	Tr 400 X 5	52	66	-	-	HM3080	MS3080-76
	Tr 400 X 5	52	66	M6	4	HM3080	MS3080-76
	Tr 400 X 5	62	82	-	-	HM3180	MS3184-80
	Tr 400 X 5	62	82	M6	4	HM3180	MS3184-80
400	Tr 420 X 5	52	66	-	-	HM3084	MS3084
	Tr 420 X 5	52	66	M6	4	HM3084	MS3084
	Tr 420 X 5	70	90	-	-	HM3184	MS3184-80
	Tr 420 X 5	70	90	M6	4	HM3184	MS3184-80
410	Tr 440 X 5	60	77	-	-	HM3088	MS3092-88
	Tr 440 X 5	60	77	M8	6,5	HM3088	MS3092-88
	Tr 440 X 5	70	90	-	-	HM3188	MS3192-88
	Tr 440 X 5	70	90	M8	6,5	HM3188	MS3192-88
430	Tr 460 X 5	60	77	-	-	HM3092	MS3092-88
	Tr 460 X 5	60	77	M8	6,5	HM3092	MS3092-88
	Tr 460 X 5	75	95	-	-	HM3192	MS3192-88

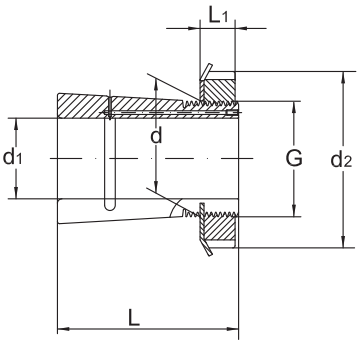
Adapter sleeves

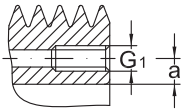




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
430	460	580	326	**OH3192 H**	119
450	480	560	237	**H3096**	75
		560	237	**OH3096 H**	75
		620	335	**H3196**	135
		620	335	**OH3196 H**	135
470	500	580	247	**H30/500**	82
		580	247	**OH30/500 H**	82
		630	356	**H31/500**	145
		630	356	**OH31/500 H**	145
500	530	630	265	**H30/530**	105
		630	265	**OH30/530 H**	105
530	560	650	282	**H30/560**	112
		650	282	**OH30/560 H**	112
560	600	700	289	**H30/600**	147
		700	289	**OH30/600 H**	147
600	630	730	301	**H30/630**	138
		730	301	**OH30/630 H**	138
630	670	780	324	**H30/670**	190
		780	324	**OH30/670 H**	190
670	710	830	342	**H30/710**	228
		830	342	**OH30/710 H**	228
710	750	870	356	**H30/750**	246
		870	356	**OH30/750 H**	246
750	800	920	366	**H30/800**	302

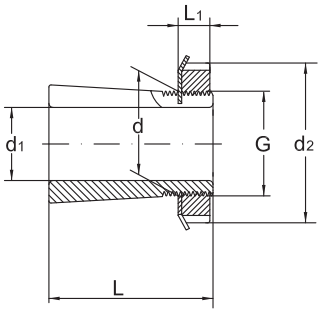
Adapter sleeves

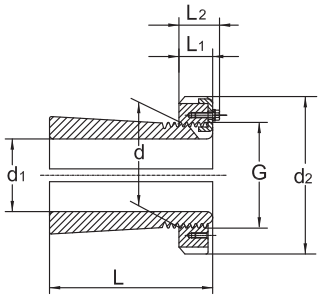




Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
430	Tr 460 X 5	75	95	M8	6,5	HM3192	MS3192-88
450	Tr 480 X 5	60	77	-	-	HM3096	MS30/500-96
	Tr 480 X 5	60	77	M8	6,5	HM3096	MS30/500-96
	Tr 480 X 5	75	95	-	-	HM3196	MS3196
	Tr 480 X 5	75	95	M8	6,5	HM3196	MS3196
470	Tr 500 X 5	68	85	-	-	HM30/500	MS30/500-96
	Tr 500 X 5	68	85	M8	6,5	HM30/500	MS30/500-96
	Tr 500 X 5	80	100	-	-	HM31/500	MS31/500
	Tr 500 X 5	80	100	M8	6,5	HM31/500	MS31/500
500	Tr 530 X 6	68	90	-	-	HM30/530	MS30/600-530
	Tr 530 X 6	68	90	M8	6	HM30/530	MS30/600-530
530	Tr 560 X 6	75	97	-	-	HM30/560	MS30/560
	Tr 560 X 6	75	97	M8	6	HM30/560	MS30/560
560	Tr 600 X 6	75	97	-	-	HM30/600	MS30/600-530
	Tr 600 X 6	75	97	-	8	HM30/600	MS30/600-530
600	Tr 630 X 6	75	97	-	-	HM30/630	MS30/630
	Tr 630 X 6	75	97	M8	6	HM30/630	MS30/630
630	Tr 670 X 6	80	102	-	-	HM30/670	MS30/670
	Tr 670 X 6	80	102	-	8	HM30/670	MS30/670
670	Tr 710 X 7	90	112	-	-	HM30/710	MS30/710
	Tr 710 X 7	90	112	-	8	HM30/710	MS30/710
710	Tr 750 X 7	90	112	-	-	HM30/750	MS30/800-750
	Tr 750 X 7	90	112	-	8	HM30/750	MS30/800-750
750	Tr 840 X 7	90	112	-	-	HM30/800	MS30/800-750

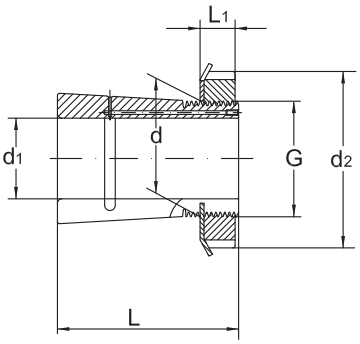
Adapter sleeves

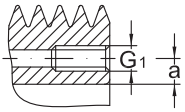




Shaft Ø	Dimension			Designation adapter sleeve, complete	Mass
d_1	d	d_2	L		
mm					kg
750	800	920	366	**OH30/800 H**	302
800	850	980	380	**H30/850**	341
		980	380	**OH30/850 H**	341

Adapter sleeves





Shaft Ø	Thread	Dimensions				Lock nut	Locking Device
d_1	G	L_1	L_2	G1	a		
mm							
750	Tr 800 X 7	90	112	-	10	HM30/800	MS30/800-750
800	Tr 850 X 7	90	115	-	-	HM30/850	MS30/900-850
	Tr 850 X 7	90	115	-	10	HM30/850	MS30/900-850

Withdrawal Sleeves

Standards, Boundary dimensions

Withdrawal Sleeves	DIN 5416

General

Withdrawal sleeves (see sketch below) are slotted steel sleeves that have a tapered outer diameter on one side and a thread on the large diameter on the opposite side.

Standard withdrawal sleeves have tapered outers, taper **1:12** except for withdrawal sleeves of series **AH 240** and **AH 241** having tapers **1:30**.

URB Withdrawal Sleeves are supplied without lock nut as standard.

URB Withdrawal Sleeves are produced in two different designs as standard.

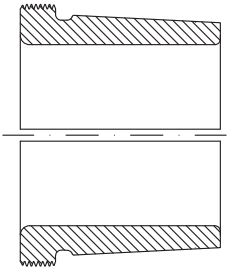
Beside the standard design (see figure **a**), larger withdrawal sleeves from bore diameter 200 mm onwards are also available with oil bores and oil distribution ducts as required for applying the oil injection method as shown in figure **b**.

URB withdrawal sleeves that are foreseen with facilities for an application of the oil injection method are designated "**AOH**..."

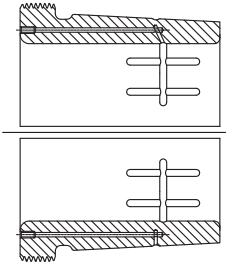
When withdrawal sleeves are used, the bearing inner ring must to be supported by an effective suface contact, such as a shaft shoulder, (see figure **a**).

Where larger radii bearing journals and shaft shoulders are necessary for strenght reasons, (e.g. where such radii become larger than the bearing fillet, suitable distance rings must be applied.)

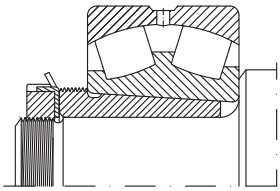
In each case the withdrawal sleeves must be secured against axial displacement loosening by means of lock nuts (see fig. c) or end plates (fig. **d**).



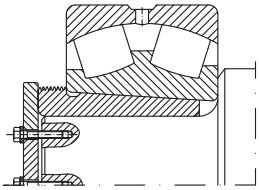
a



b

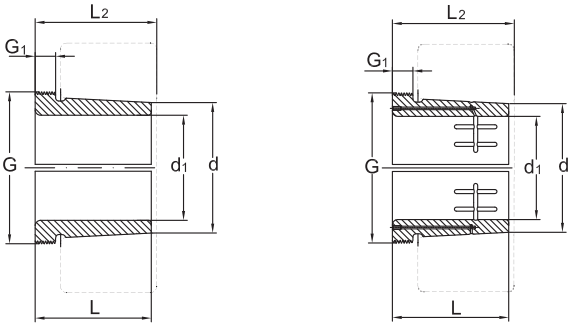


c



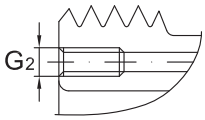
d

Withdrawal Sleeves



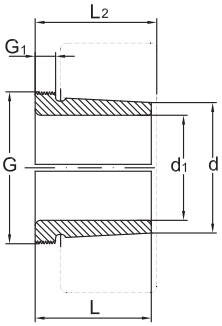
Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
35	40	M 45 X 1,5	6	-	29	32	**AH308**	0,09	KM 9
		M 45 X 1,5	7	-	40	43	**AH2308**	0,13	KM 9
40	45	M 50 X 1,5	6	-	31	34	**AH309**	0,12	KM 10
		M 50 X 1,5	7	-	44	47	**AH2309**	0,16	KM 10
45	50	M 55 X 2	7	-	35	38	**AHX310**	0,13	KM 11
		M 55 X 2	9	-	50	53	**AHX2310**	0,19	KM 11
50	55	M 60 X 2	7	-	37	40	**AHX311**	0,16	KM 12
		M 60 X 2	10	-	54	57	**AHX2311**	0,26	KM 12
55	60	M 65 X 2	8	-	40	43	**AHX312**	0,19	KM 13
		M 65 X 2	11	-	58	61	**AHX2312**	0,30	KM 13
60	65	M 70 X 2	8	-	42	45	**AH313 G**	0,22	KM 14
		M 75 X 2	12	-	61	64	**AH2313**	0,39	KM 15
65	70	M 75 X 2	8	-	43	47	**AH314 G**	0,24	KM 15
		M 80 X 2	12	-	64	68	**AHX2314**	0,45	KM 16
70	75	M 80 X 2	8	-	45	49	**AH315 G**	0,29	KM 16
		M 85 X 2	12	-	68	72	**AHX2315**	0,53	KM 17

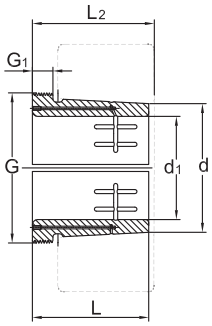
Withdrawal Sleeves



Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
75	80	M 90 X 2	8	-	48	52	**AH316**	0,37	KM 18
		M 90 X 2	12	-	71	75	**AHX2316**	0,57	KM 18
80	85	M 95 X 2	9	-	52	56	**AHX317**	0,43	KM 19
		M 95 X 2	13	-	74	78	**AHX2317**	0,65	KM 19
85	90	M 100 X 2	9	-	53	57	**AHX318**	0,46	KM 20
		M 100 X 2	10	-	63	67	**AHX3218**	0,57	KM 20
		M 100 X 2	14	-	79	83	**AHX2318**	0,76	KM 20
90	95	M 105 X 2	10	-	57	61	**AHX319**	0,54	KM 21
		M 105 X 2	16	-	57	61	**AHX2319**	0,90	KM 21
95	100	M 110 X 2	10	-	59	63	**AHX320**	0,58	KM 22
		M 110 X 2	11	-	64	68	**AHX3120**	0,66	KM 22
		M 110 X 2	11	-	73	77	**AHX3220**	0,76	KM 22
		M 110 X 2	16	-	90	94	**AHX2320**	1,00	KM 22
105	110	M 120 X 2	11	-	68	72	**AHX3122**	0,76	KM 24
		M 125 X 2	11	-	82	86	**AHX3222**	1,05	KM 25
		M 125 X 2	16	-	98	102	**AHX2322**	1,35	KM 25

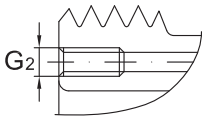
Withdrawal Sleeves





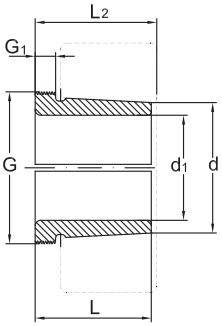
Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
105	110	M 115 X 2	13	-	82	91	**AH24122**	0,71	KM 23
115	120	M 130 X 2	13	-	60	64	**AHX3024**	0,73	KM 26
		M 130 X 2	12	-	75	79	**AHX3124**	0,94	KM 26
		M 135 X 2	13	-	90	94	**AHX3224**	1,30	KM 27
		M 135 X 2	17	-	105	109	**AHX2324**	1,65	KM 27
		M 125 X 2	13	-	73	82	**AH24024**	0,70	KM 25
		M 130 X 2	13	-	93	102	**AH24124**	1,00	KM 26
125	130	M 140 X 2	14	-	67	71	**AHX3026**	0,91	KM 28
		M 140 X 2	12	-	78	82	**AHX3126**	1,10	KM 28
		M 145 X 2	15	-	98	102	**AHX3226**	1,55	KM 29
		M 145 X 2	19	-	115	119	**AHX2326**	2,00	KM 29
		M 135 X 2	14	-	83	93	**AH24026**	0,88	KM 27
		M 140 X 2	14	-	94	104	**AH24126**	1,15	KM 28
135	140	M 150 X 2	14	-	68	73	**AHX3028**	1,00	KM 30
		M 150 X 2	14	-	83	88	**AHX3128**	1,30	KM 30
		M 155 X 3	15	-	104	109	**AHX3228**	1,85	KM 31

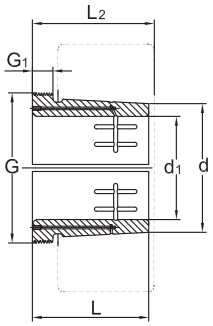
Withdrawal Sleeves



Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
135	140	M 155 X 3	20	-	125	130	**AHX2328**	2,35	KM 31
		M 145 X 2	14	-	83	93	**AH24028**	0,95	KM 29
		M 150 X 2	14	-	99	109	**AH24128**	1,30	KM 30
145	150	M 160 X 3	15	-	72	77	**AHX3030**	1,15	KM 32
		M 165 X 3	15	-	96	101	**AHX3130**	1,80	KM 33
		M 165 X 3	17	-	114	119	**AHX3230**	2,20	KM 33
		M 165 X 3	24	-	135	140	**AHX2330**	2,80	KM 33
		M 155 X 3	15	-	90	101	**AH24030**	1,05	KM 31
		M 160 X 3	15	-	115	126	**AH24130**	1,55	KM 32
150	160	M 170 X 3	16	-	77	82	**AH3032**	2,05	KM 34
		M 180 X 3	16	-	103	108	**AH3132**	3,20	KM 36
		M 180 X 3	20	-	124	130	**AH3232**	4,00	KM 36
		M 180 X 3	24	-	140	146	**AH2332**	4,65	KM 36
		M 170 X 3	15	-	95	106	**AH24032**	2,30	KM 34
		M 170 X 3	15	-	124	135	**AH24132**	3,05	KM 34
160	170	M 180 X 3	17	-	85	90	**AH3034**	2,40	KM 36

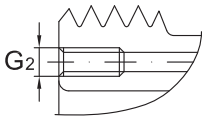
Withdrawal Sleeves





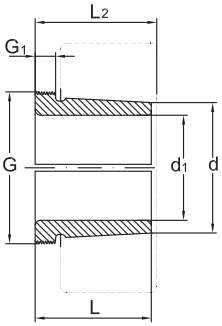
Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
160	170	M 190 X 3	16	-	104	109	**AH3134**	3,45	KM 38
		M 190 X 3	24	-	134	140	**AH3234**	4,80	KM 38
		M 190 X 3	24	-	146	152	**AH2334**	5,25	KM 38
		M 180 X 3	16	-	106	117	**AH24034**	2,70	KM 36
		M 180 X 3	16	-	125	136	**AH24134**	3,25	KM 36
170	180	M 190 X 3	17	-	92	98	**AH3036**	2,80	KM 38
		M 200 X 3	17	-	105	110	**AH2236**	3,75	KM 40
		M 200 X 3	19	-	116	122	**AH3136**	4,25	KM 40
		M 200 X 3	24	-	140	146	**AH3236**	5,25	KM 40
		M 200 X 3	26	-	154	160	**AH2336**	6,05	KM 40
		M 190 X 3	16	-	116	127	**AH24036**	3,20	KM 38
		M 190 X 3	16	-	134	145	**AH24136**	3,75	KM 38
180	190	Tr 205 X 4	18	-	96	102	**AH3238**	3,40	HML 41 T
		Tr 210 X 4	18	-	112	117	**AH2238**	4,25	HM 42 T
		Tr 210 X 4	20	-	125	131	**AH3138**	4,90	HM 42 T
		Tr 210 X 4	25	-	145	152	**AH3238**	5,90	HM 42 T

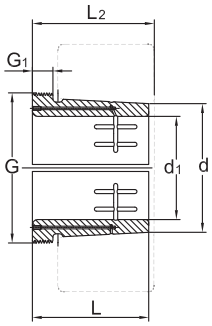
Withdrawal Sleeves



Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
180	190	Tr 210 X 4	26	-	160	167	**AH2338**	6,70	HM 42 T
		M 200 X 3	18	-	118	131	**AH24038**	3,55	KM 40
		M 200 X 3	18	-	146	159	**AH24138**	4,45	KM 40
190	200	Tr 215 X 4	19	-	102	108	**AH3040**	3,85	HML 43 T
		Tr 220 X 4	19	-	118	123	**AH2240**	4,70	HM 44 T
		Tr 220 X 4	21	-	134	140	**AH3140**	5,65	HM 44 T
		Tr 220 X 4	25	-	153	160	**AH3240**	6,60	HM 44 T
		Tr 220 X 4	30	-	170	177	**AH2340**	7,60	HM 44 T
		Tr 210 X 4	18	-	127	140	**AH24040**	4,00	HM 42 T
		Tr 210 X 4	18	-	158	171	**AH24140**	5,05	HM 42 T
200	220	Tr 235 X 4	20	G 1/8	111	117	**AH3044**	7,40	HML 47 T
		Tr 240 X 4	23	G 1/4	145	115	**AH3144**	9,30	HM 48 T
		Tr 240 X 4	30	G 1/4	181	189	**AH2344**	13,5	HM 48 T
		Tr 230 X 4	20	G 1/8	138	152	**AH24044**	8,20	HM 46 T
		Tr 230 X 4	20	G 1/8	170	184	**AH24144**	10,0	HM 46 T
220	240	Tr 260 X 4	21	G 1/4	116	123	**AH3048**	7,95	HM 3052

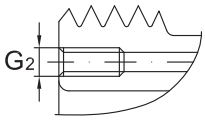
Withdrawal Sleeves





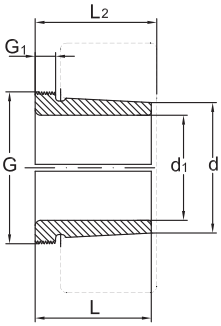
Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
220	240	Tr 260 X 4	25	G 1/4	154	161	**AH3148**	12,0	HM 52 T
		Tr 260 X 4	30	G 1/4	189	197	**AH2348**	14,0	HM 52 T
		Tr 250 X 4	20	G 1/8	138	153	**AOH24048**	8,05	HM 50 T
		Tr 260 X 4	20	G 1/4	180	195	**AOH24148**	11,5	HM 52 T
240	260	Tr 280 X 4	23	G 1/4	128	135	**AOH3052**	9,60	HM 3056
		Tr 290 X 4	23	G 1/4	155	161	**AOH2252**	12,5	HM 58 T
		Tr 290 X 4	26	G 1/4	172	179	**AOH3152**	16,0	HM 58 T
		Tr 290 X 4	30	G 1/4	205	213	**AOH2352**	17,5	HM 58 T
		Tr 270 X 4	22	G 1/8	162	178	**AOH24052**	10,5	HM 54 T
		Tr 280 X 4	22	G 1/4	202	218	**AOH24152**	14,0	HM 56 T
260	280	Tr 300 X 4	24	G 1/4	131	139	**AOH3056**	11,0	HM 3060
		Tr 310 X 5	28	G 1/4	175	183	**AOH3156**	15,5	HM 62 T
		Tr 310 X 5	30	G 1/4	212	220	**AOH2356**	19,5	HM 62 T
		Tr 290 X 4	22	G 1/8	162	179	**AOH24056**	11,5	HM 58 T
		Tr 300 X 4	22	G 1/4	202	219	**AOH24156**	15,0	HM 3160
280	300	Tr 320 X 5	26	G 1/4	145	153	**AOH3060**	13,0	HM 3064

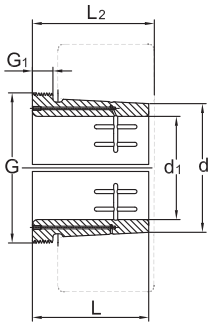
Withdrawal Sleeves



Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
280	300	Tr 330 X 5	30	G 1/4	192	200	**AOH3160**	19,0	HM 66 T
		Tr 330 X 5	34	G 1/4	228	236	**AOH3260**	23,5	HM 66 T
		Tr 310 X 5	24	G 1/8	184	202	**AOH24060**	14,0	HM 62 T
		Tr 320 X 5	24	G 1/4	224	242	**AOH24160**	18,5	HM 3164
300	320	Tr 345 X 5	27	G 1/4	149	157	**AOH3064**	14,5	HM 69 T
		Tr 350 X 5	31	G 1/4	209	217	**AOH3164**	22,5	HM 70 T
		Tr 350 X 5	36	G 1/4	246	254	**AOH3264**	27,5	HM 70 T
		Tr 330 X 5	24	G 1/8	184	202	**AOH24064**	15,0	HM 66 T
		Tr 340 X 5	24	G 1/4	242	260	**AOH24164**	20,5	HM 3168
320	340	Tr 365 X 5	28	G 1/4	162	171	**AOH3068**	17,5	HML 73 T
		Tr 370 X 5	33	G 1/4	225	234	**AOH3168**	26,5	HM 74 T
		Tr 370 X 5	38	G 1/4	264	273	**AOH3268**	32,0	HM 74 T
		Tr 360 X 5	26	G 1/4	206	225	**AOH24068**	18,0	HM 3072
		Tr 360 X 5	26	G 1/4	269	288	**AOH24168**	25,5	HM 3172
340	360	Tr 385 X 5	30	G 1/4	167	176	**AOH3072**	19,0	HML 77 T
		Tr 400 X 5	35	G 1/4	229	238	**AOH3172**	30,0	HM 3180

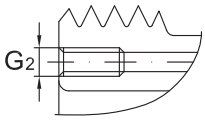
Withdrawal Sleeves





Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
340	360	Tr 400 X 5	40	G 1/4	274	283	**AOH3272**	33,0	HM 3180
		Tr 380 X 5	26	G 1/4	206	226	**AOH24072**	20,0	HM 3076
		Tr 380 X 5	26	G 1/4	269	289	**AOH24172**	26,0	HM 3176
360	380	Tr 410 X 5	31	G 1/4	170	180	**AOH3076**	23,5	HML 82 T
		Tr 420 X 5	36	G 1/4	232	242	**AOH3176**	38,0	HM 3184
		Tr 420 X 5	42	G 1/4	284	294	**AOH3276**	45,5	HM 3184
		Tr 400 X 5	28	G 1/4	208	228	**AOH24076**	23,5	HM 3080
		Tr 400 X 5	28	G 1/4	271	291	**AOH24176**	31,0	HM 3180
380	400	Tr 430 X 5	33	G 1/4	183	193	**AOH3080**	27,0	HML 86 T
		Tr 440 X 5	38	G 1/4	240	250	**AOH3180**	39,5	HM 3188
		Tr 440 X 5	44	G 1/4	302	312	**AOH3280**	51,5	HM 3188
		Tr 420 X 5	28	G 1/4	228	248	**AOH24080**	27,0	HM 3084
		Tr 420 X 5	28	G 1/4	278	298	**AOH24180**	35,0	HM 3184
400	420	Tr 450 X 5	34	G 1/4	186	196	**AOH3084**	29,0	HML 90 T
		Tr 460 X 5	40	G 1/4	266	276	**AOH3184**	46,0	HM 3192
		Tr 440 X 5	30	G 1/4	230	252	**AOH24084**	29,0	HM 3088

Withdrawal Sleeves



Shaft Ø	Dimension						Designation adapter sleeve, complete	Mass	Lock Nut
d_1	d	G	G_1	G_2	L	L_1			
mm								kg	
400	420	Tr 440 X 5	30	G 1/4	310	332	**AOH24184**	39,0	HM 3188
420	440	Tr 460 X 5	30	G 1/4	242	264	**AOH24088**	32,0	HML 92 T
		Tr 460 X 5	30	G 1/4	310	332	**AOH24188**	45,5	HM 3192
440	460	Tr 480 X 5	32	G 1/4	332	355	**AOH24192**	50,0	HM 3196
460	480	Tr 500 X 5	32	G 1/4	340	363	**AOH24196**	51,5	HM 31/500
480	500	Tr 530 X 6	35	G 1/4	360	383	**AOH241/500**	57,0	HM 31/530
500	530	Tr 550 X 6	35	G 1/4	370	394	**AOH241/530**	86,0	HM 110 T
530	560	Tr 580 X 6	38	G 1/4	393	417	**AOH241/560**	97,0	HM 116 T
560	600	Tr 630 X 6	38	G 1/4	413	439	**AOH241/600**	120	HM 126 T
600	630	Tr 650 X 6	40	G 1/4	440	466	**AOH241/630**	130	HM 130 T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