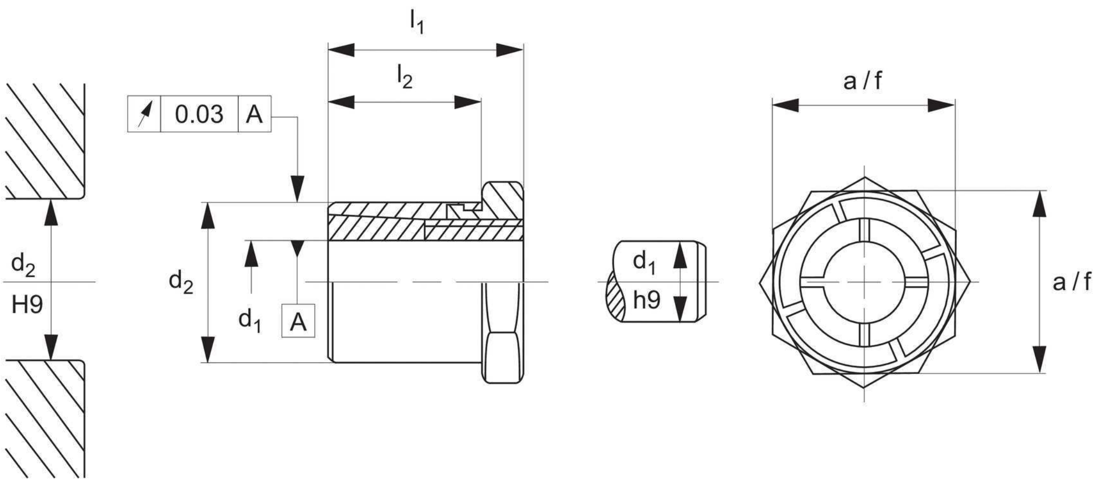
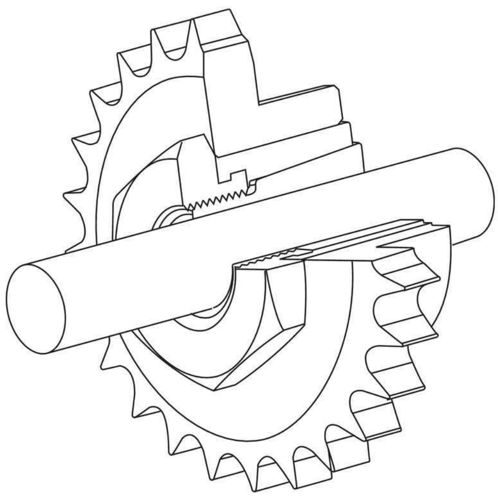


Material
Inner part: steel, blackened. Outer part: steel, galvanised. Nut: steel, nickel-plated.

Technical Notes
Ta = tightening torque of nut.
M = transferable torque.
Fa = transferable thrust load.
pw = surface pressure of shaft.
pn = surface pressure of hub.
The rotational accuracy is 0,03mm.
Please refer to technical pages for mounting instructions.

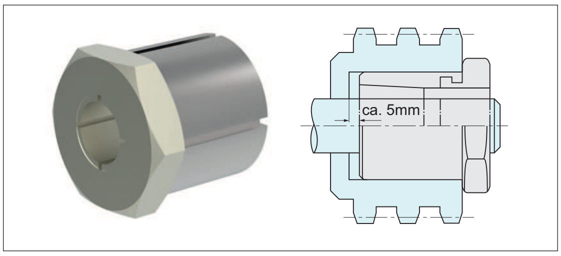
Tips
These self-centering and non-floating tapered shaft hubs are used to easily and effectively achieve shaft/hub joints of machine elements such as sprocket wheels, gear wheels, belt pulleys, cams, levers etc.

Order No.	Finish	d_1	d_2	l_1	l_2	a/f	Ta max. Nm	M max. Nm	Fa max. kN	pw max. N/mm²	pn max. N/mm²	g
38400.W0005	Without Lock Nut	5	14	19	15	14	9,9	10,1	4,0	264	96	20
38400.W0006	Without Lock Nut	6	14	19	15	14	9,9	12,1	4,0	220	96	19
38400.W0008	Without Lock Nut	8	16	22	17	16	16,9	23,4	5,8	179	91	26
38400.W0009	Without Lock Nut	9	20	24	19	22	34,9	43,7	9,7	245	115	47
38400.W0010	Without Lock Nut	10	20	24	19	22	34,9	48,6	9,7	221	115	46
38400.W0011	Without Lock Nut	11	22	24	19	22	43,8	59,9	10,9	225	117	51
38400.W0012	Without Lock Nut	12	22	24	19	22	43,8	65,3	10,9	206	117	49
38400.W0014	Without Lock Nut	14	26	28	22	27	65,0	93,0	13,3	178	99	83
38400.W0015	Without Lock Nut	15	26	28	22	27	65,0	99,0	13,3	166	99	78
38400.W0016	Without Lock Nut	16	26	28	22	27	65,0	106,0	13,3	156	99	73
38400.W0018	Without Lock Nut	18	35	36	27	36	161,0	223,0	24,8	224	125	201
38400.W0019	Without Lock Nut	19	35	36	27	36	161,0	235,0	24,8	212	125	189
38400.W0020	Without Lock Nut	20	35	36	27	36	161,0	248,0	24,8	201	125	186
38400.W0022	Without Lock Nut	22	42	41	30	46	250,0	349,0	31,8	197	110	346
38400.W0024	Without Lock Nut	24	42	41	30	46	250,0	381,0	31,8	180	110	326
38400.W0025	Without Lock Nut	25	42	41	30	46	250,0	397,0	31,8	173	110	315
38400.W0028	Without Lock Nut	28	47	44	33	50	355,0	565,0	40,4	174	110	403
38400.W0030	Without Lock Nut	30	47	44	33	50	355,0	605,0	40,4	162	110	378
38400.W0032	Without Lock Nut	32	55	51	38	55	490,0	764,0	47,8	166	102	632
38400.W0035	Without Lock Nut	35	55	51	38	55	490,0	836,0	47,8	151	102	571
38400.W0038	Without Lock Nut	38	62	58	43	65	720,0	1179,0	62,1	159	111	897
38400.W0040	Without Lock Nut	40	62	58	43	65	720,0	1241,0	62,1	151	111	842

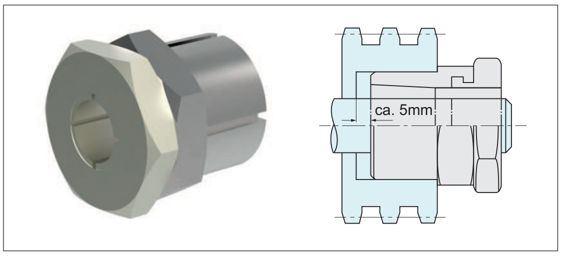


Wixroyd Tapered Shaft Hubs

mounting and assembly instructions



Tapered shaft hub with hexagon nut

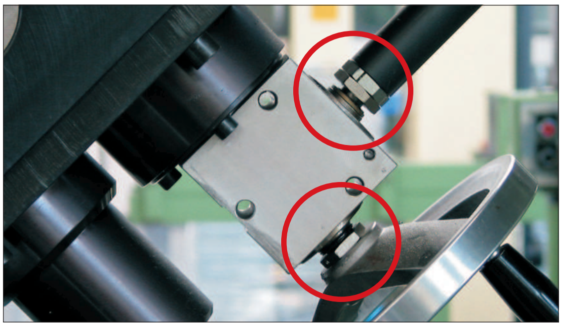


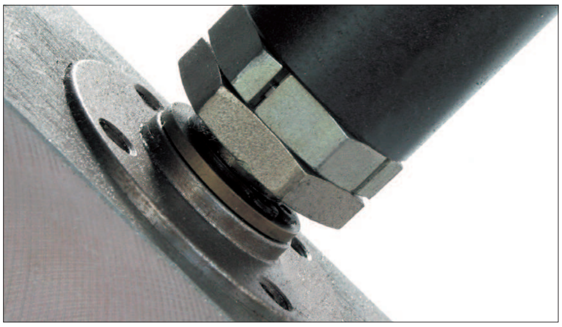
Tapered shaft hub with hexagon nut and lock nut

Applications

By using tapered shaft hubs, sprocket wheels, gear wheels, belt pulleys, cams, levers etc. can be easily and efficiently installed.

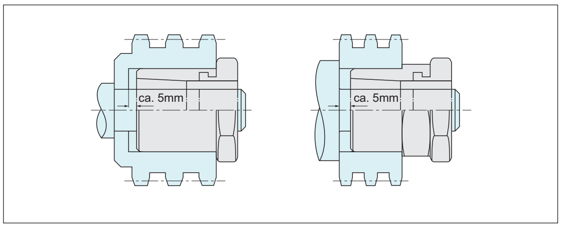
Tapered shaft hubs are available with or without lock nuts.





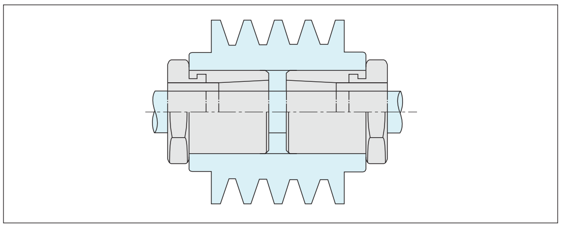
No axial shift

If, on mounting, the hub sits close to a collar, an axial offset is not possible. In this case, only 60% of the forces mentioned in the charts can be transmitted.



Two tapered shaft hubs in one hub

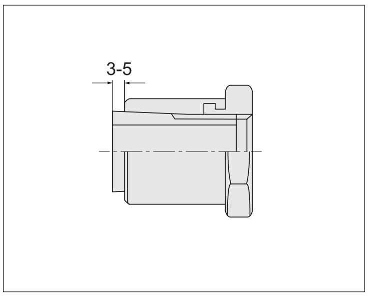
When using this method, the tapered shaft hub which is tightened first transmits 100% of the forces mentioned in the charts. When tightening the second tapered shaft hub, an axial offset of the hub is not possible. Therefore, this tapered shaft hub is able to transmit only 60% of the forces.



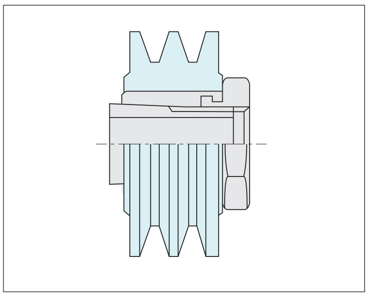
Assembly and disassembly

Assembly

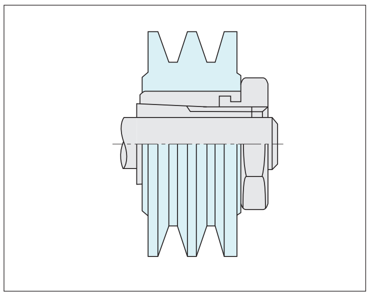
The contact surface of the shaft and the hub must be free from oil and dirt.



1. Rotate nut to the left until the inner part protrudes approx. 3-5mm over the outer.



2. Install tapered shaft hub in the hub hole.



3. Slightly tighten the nut when located in the desired position. Compensate the axial offset thus produced with a soft-face mallet. Tighten the tapered shaft hub.

Disassembly

1. Release tapered shaft hub by turning the nut to the left until the inner part protrudes approx. 3-5mm over the outer part.

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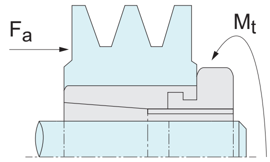
Simultaneous exposure to different forces

If torque (M_t) and axial forces (F_a) are transmitted simultaneously, a resultant total torque (M_r) is obtained which must be less than or equal to the maximum torque (M_{max}) indicated in the charts. ($M_r \leq M_{max}$).



$$M_r = \sqrt{\frac{d_1}{M_t^2 + (F_a \times 2 \times 1000)^2 \times \nu}}$$

M_r = Resultant total torque
M_t = Torque
F_a = Axial force
d_1 = Shaft diameter
ν = Safety factor

Example:

Shaft hub 38420.W0125

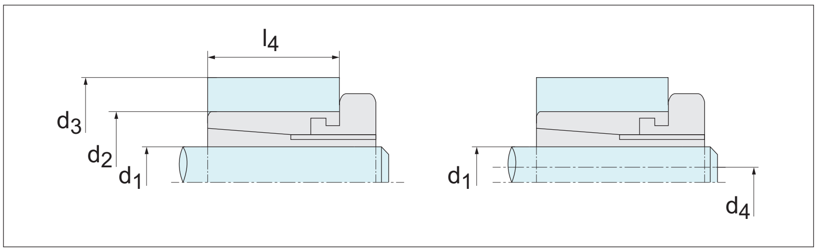
M_t = 150Nm
F_a = 5kN
d_1 = 25mm
ν = 2

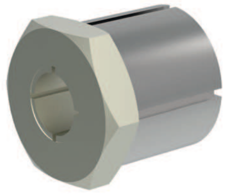
$$M_r = \sqrt{\frac{25mm}{150^2Nm^2 + (5000N \times 2 \times 1000mm/m)^2 \times 2}} = 325Nm$$

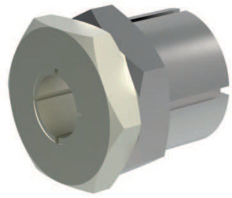
A maximum torque (M_{max}) of 520 Nm is transmitted by the tapered shaft hub 38420.W0125. The forces can be transmitted because M_r (325 Nm) is less than M_{max}.

Outside diameter of hub and inside diameter to hollow shaft

When fitting tapered shaft hubs, the outside diameter of the hub and the inside diameter of the hollow shaft have to be considered.







Smallest possible outside diameter of hub

$$d_3 \geq d_2 \times \sqrt{\frac{R_e + P_N \times C_N}{R_e - P_N \times C_N}} \quad [mm]$$

d_1 = Shaft diameter
d_2 = Hub hole
d_3 = Outside diameter of hub
d_4 = Inside diameter of hollow shaft
R_e = Apparent yielding point
$R_{p0,2}$ $R_{p0,1}$ = Permanent elongation limit

Example:

Tapered shaft hub 38400.W0025, hub material GG25;

$R_{p0,1}$ = 165Nmm²
C_N = 1

$$d_3 \geq = 42mm \times \sqrt{\frac{165Nmm^2 + 103Nmm^2 \times 1}{165Nmm^2 - 103Nmm^2 \times 1}} \geq 87{,}4mm$$

Largest possible inside diameter of hollow shaft

$$d_4 \leq d_1 \times \sqrt{\frac{R_e - 2P_W}{R_e\ (R_p)}} \quad [mm]$$

P_N = Surface pressure hub
P_W = Surface pressure shaft
C_N = Factor [is “1”, if the hub length is ≥ the fitting length of the tapered shaft hub ($L_N \geq L_2$)]

Tapered shaft hub 38400.W0025, hub material CK45;

R_e = 380Nmm²
C_N = 1

$$d_4 \leq 25mm \times \sqrt{\frac{380Nmm^2 - 2 \times 174Nmm^2}{380Nmm^2}} \leq 7{,}2mm$$

Material chart

	Material									
	St 37-2 Ust 37-2	St 50-2	Ck 35	Ck 45	11 SMn 30 11SMn Pb 30	GG 15	GG 20	GG 25	GGG-40	AlMg 3 F 25
	Minimum strength values in N/mm²									
Diameter	Re	Re	Re	Re	Re	Rp 0,1	Rp 0,1	Rp 0,1	Rp 0,2	Re
$16 < d_1 \leq 40$	225	285	320	380	375	90	130	165	250	180
$40 < d_1 \leq 100$	205	265	260	300	245	90	130	165	250	180

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