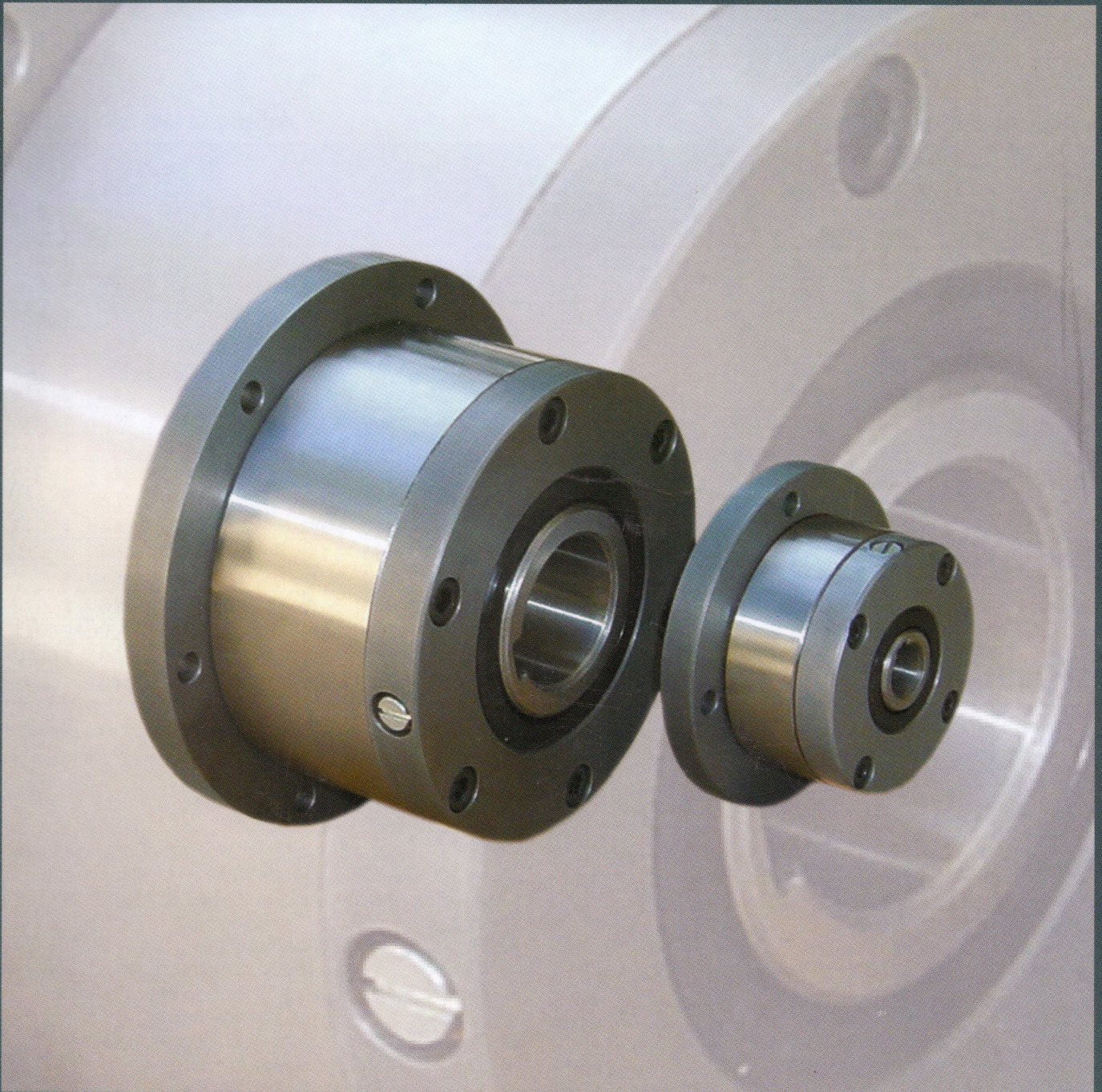


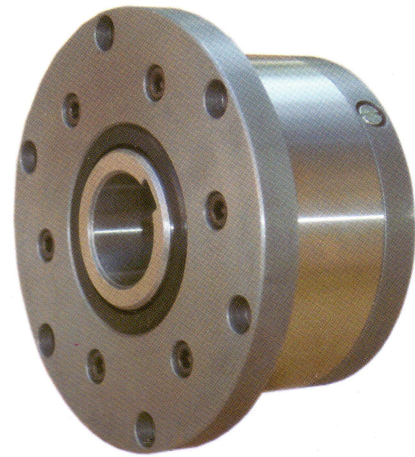
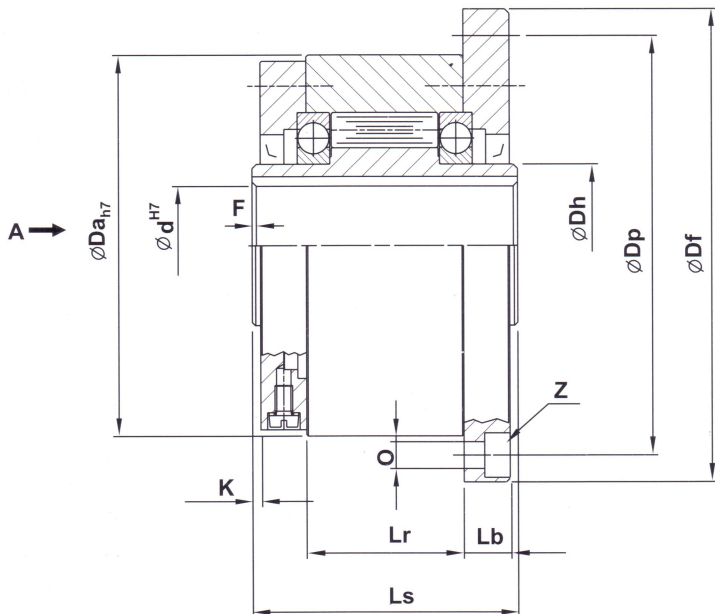
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**Freewheels  
FW & LW**



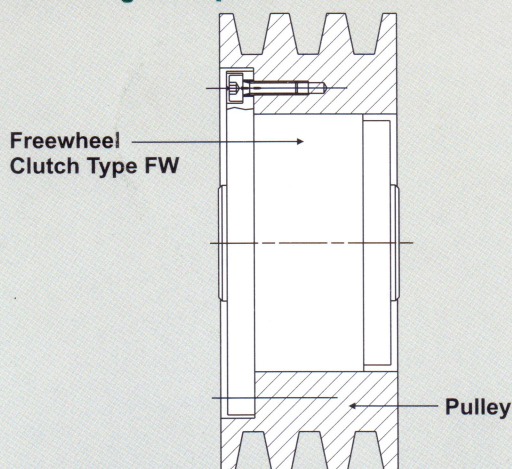
# FW Type Freewheels



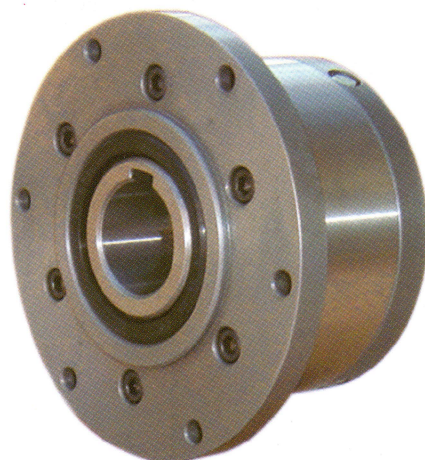
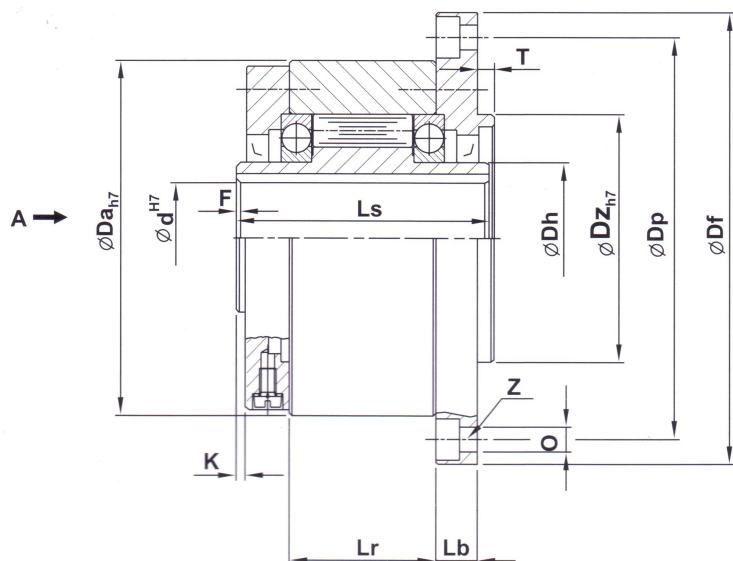
## Dimensions and Capacities :

Type	Nominal Torque $T_n$ Nm	Overrunning Speed		d H7 mm	Da h7 mm	Dh mm	Dp mm	Df mm	Z	O mm	Lb mm	Lr mm	Ls mm	K mm	F mm
		$n_{max1}$ Innerrace rpm	$N_{max1}$ Outerrace rpm												
FW - 12	53	2380	4750	12	62	20	72	85	4	5.5	10	20	42	1	0.5
FW - 15	123	1790	4280	15	68	25	78	92	3	5.5	11	28	52	1	0.8
FW - 20	177	1500	3670	20	75	30	85	98	4	5.5	10.5	34	57	1	0.8
FW - 25	282	1300	3100	25	90	40	104	118	4	6.6	11.5	35	60	1	1
FW - 30	490	1130	2550	30	100	45	114	128	6	6.6	11.5	43	68	1	1
FW - 35	710	990	2200	35	110	50	124	138	6	6.6	13.5	45	74	1	1
FW - 40	1005	900	1875	40	125	55	142	160	6	9	15.5	53	86	1	1.5
FW - 45	1105	780	1690	45	130	60	146	165	8	9	15.5	53	86	1	1.5
FW - 50	2085	740	1600	50	150	70	166	185	8	9	14	64	94	1	1.5
FW - 55	2575	640	1500	55	160	75	182	204	8	11	18	66	104	1	2
FW - 60	3450	600	1400	60	170	80	192	214	10	11	17	78	114	1	2
FW - 70	5700	500	1300	70	190	90	212	234	10	11	18.5	95	134	1	2.5
FW - 80	8400	390	1140	80	210	105	232	254	10	11	20	112	154	1	2.5
FW - 90	14300	300	980	90	230	120	254	278	10	14	20.5	133	176	1	3
FW - 100	19800	250	875	100	270	140	305	335	10	18	23	138	188	2	3
FW - 120	30900	170	650	120	310	160	345	375	12	18	31.5	159	226	2	3
FW - 150	69000	110	410	150	400	200	445	485	12	22	31.5	200	266	1.5	4

## Mounting Example :



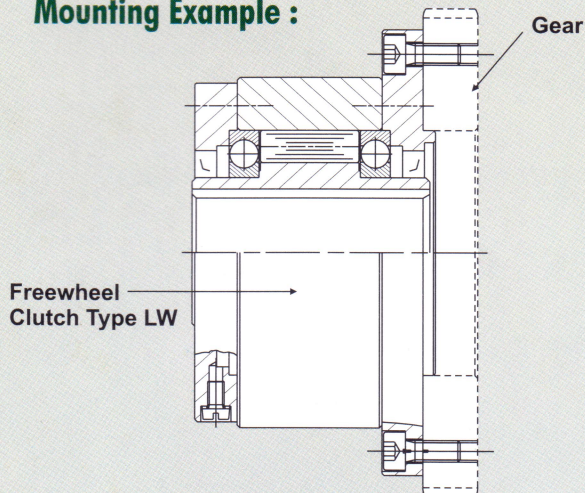
- 1) The maximum overrunning speeds are for oil bath lubrication only.  
For pressure lubrication 150% of indicated speeds.  
For grease lubrication 50% of indicated speeds.  
If higher speeds are required other than those listed please consult.
- 2) Standard direction of rotation:  
Inner race rotates freely in anticlockwise direction when viewed from "A". Please specify while Ordering if clockwise free rotation of hub is required.
- 3) Freewheels with special bore sizes are available.
- 4)  $T_{max} = T_n \times 2$  for momentary load.
- 5) Keyway as per DIN 6885 Sh. 1.



## Dimensions and Capacities :

Type	Nominal Torque $T_n$ Nm	Overrunning Speed		d H7 mm	Da h7 mm	Dh mm	Dp mm	Df mm	Dz h7 mm	T mm	Z	O mm	Lb mm	Lr mm	Ls mm	K mm	F mm
		$n_{max(1)}$ Inerrace rpm	$N_{max(1)}$ Outerrace rpm														
LW - 12	53	2380	4750	12	62	20	72	85	42	3	4	5.5	10	20	42	1	0.5
LW - 15	123	1790	4280	15	68	25	78	92	47	3	3	5.5	11	28	52	1	0.8
LW - 20	177	1500	3670	20	75	30	85	98	55	3	4	5.5	10.5	34	57	1	0.8
LW - 25	282	1300	3100	25	90	40	104	118	68	3	4	6.6	11.5	35	60	1	1
LW - 30	490	1130	2550	30	100	45	114	128	75	3	6	6.6	11.5	43	68	1	1
LW - 35	710	990	2200	35	110	50	124	138	80	3.5	6	6.6	13.5	45	74	1	1
LW - 40	1005	900	1875	40	125	55	142	160	90	3.5	6	9	15.5	53	86	1	1.5
LW - 45	1105	780	1690	45	130	60	146	165	95	3.5	8	9	15.5	53	86	1	1.5
LW - 50	2085	740	1600	50	150	70	166	185	110	4	8	9	14	64	94	1	1.5
LW - 55	2575	640	1500	55	160	75	182	204	115	4	8	11	18	66	104	1	2
LW - 60	3450	600	1400	60	170	80	192	214	125	4	10	11	17	78	114	1	2
LW - 70	5700	500	1300	70	190	90	212	234	140	4	10	11	18.5	95	134	1	2.5
LW - 80	8400	390	1140	80	210	105	232	254	160	4	10	11	20	112	154	1	2.5
LW - 90	14300	300	980	90	230	120	254	278	180	4.5	10	14	20.5	133	176	1	3
LW - 100	19800	250	875	100	270	140	305	335	210	5	10	18	23	138	188	2	3
LW - 120	30900	170	650	120	310	160	345	375	240	5	12	18	31.5	159	226	2	3
LW - 150	69000	110	410	150	400	200	445	485	310	5	12	22	31.5	200	266	1.5	4

## Mounting Example :



- 1) The maximum overrunning speeds are for oil bath lubrication only.  
For pressure lubrication 150% of indicated speeds.  
For grease lubrication 50% of indicated speeds.  
If higher speeds are required other than those listed please consult.
- 2) Standard direction of rotation:  
Inner race rotates freely in anticlockwise direction when viewed from "A". Please specify while Ordering if clockwise free rotation of hub is required.
- 3) Freewheels with special bore sizes are available.
- 4)  $T_{max} = T_n \times 2$  for momentary load.
- 5) Keyway as per DIN 6885 Sh. 1.

**Description**

Freewheels type FW / LW are completely sealed units with built-in ball bearings. These are used as backstops, overrunning and indexing freewheels. The outside diameter of the freewheel is group to close tolerance which can be used as location for mounting gear wheels, sprockets, pulleys and indexing arm etc. The 'Z' holes on big cover should be used for bolting. When used as indexing freewheel, indexing with outer race is recommended. Also for indexing applications the key connection should be free from play. Freewheels type LW have been provided with a centering diameter on big cover. Universal joints, flexible couplings, gears etc. can be mounted on centering diameter.

**Lubrication**

For high overrunning speeds or indexing applications oil lubrication has to be provided. Before putting into operation freewheel should be filled with oil up to the oil level provided on freewheel.. Small cover of freewheel is provided with 3 screws for oil filling, drain and oil level.

For good indexing accuracy use hydraulic oil without any additives and of viscosity of about 12mm<sup>2</sup>/sec at operating temperature.

When designing connecting parts, please make sure that lubrication can be changed.

**Selection Procedure**

The following procedure is given for guidance in selection of FW / LW type Freewheels.

1. Calculate torque to be transmitted from the formula

$$T = \frac{7118.6 \times \text{HP}}{\text{RPM}} \text{ Nm}$$

2. Determine mode of operation (indexing, backstopping or overrunning)
3. Select and apply proper service factor from the table given below.
4. Calculate design torque (multiply torque from step 1 by Service Factor)
5. Determine bore requirement of freewheel.
6. Select freewheel based on a) Design torque b) Bore size c) Mode of operation d) Speed.

Backstopping		Indexing	
Type Of Load	Service factor	Type Of Load	Service factor
Occasional Loading	1.0 to 2.0	Less than 150 strokes/min	1.5 to 2.0
Frequent loading	1.5 to 2.5	More than 150 strokes/min	2.0 to 3.0
Overrunning			
Type Of Load		Service factor	
Occasional Loading		1.0 to 2.0	
Frequent loading		1.5 to 2.5	

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