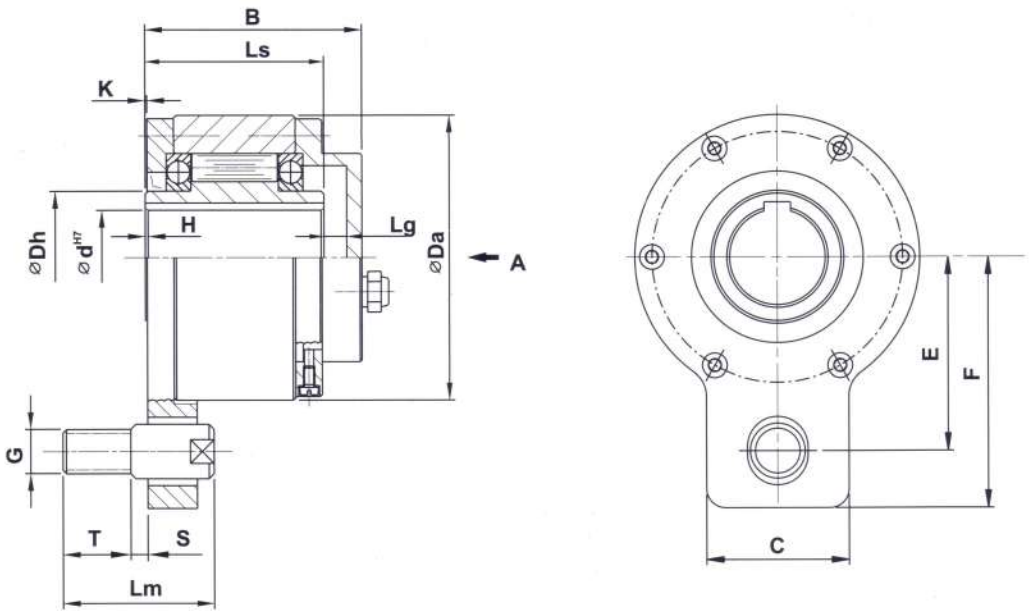
PRECISION

Backstops
ES & TS

ES Type Backstops

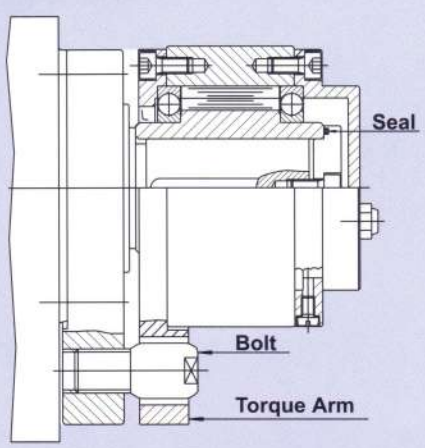
PRECISION



Dimensions and Capacities :

Type	Nominal Torque T_n Nm	$n_{max}1$ innerrace rpm	Size d^{H7} mm	Da mm	Dh mm	Ls mm	B mm	Lg mm	Lm mm	S mm	T mm	G	C mm	E mm	F mm	K mm	H mm
ES - 12	53	2380	12	62	20	42	60	6	40	5	15	M12	35	44	58	1	0.5
ES - 15	123	1790	15	68	25	52	66	10	40	5	15	M12	35	47	62	1	0.8
ES - 20	177	1500	20	75	30	57	72	10	46	5	20	M16	45	54	74	1	0.8
ES - 25	282	1300	25	90	40	60	75	10	46	5	20	M16	45	62	82	1	1
ES - 30	490	1130	30	100	45	68	83	10	56	5	25	M20 x 2	55	68	90	1	1
ES - 35	710	990	35	110	50	74	90	12	56	6	25	M20 x 2	55	76	98	1	1
ES - 40	1005	900	40	125	55	86	106	12	62	6	30	M24 x 2	65	85	110	1	1.5
ES - 45	1105	780	45	130	60	86	106	12	62	6	30	M24 x 2	65	90	115	1	1.5
ES - 50	2085	740	50	150	70	94	114	12	75	6	35	M30 x 2	75	102	132	1	1.5
ES - 55	2575	640	55	160	75	104	126	15	75	6	35	M30 x 2	75	108	138	1	2
ES - 60	3450	600	60	170	80	114	136	15	75	6	35	M30 x 2	80	112	145	1	2
ES - 70	5700	500	70	190	90	134	157	16	100	6	45	M36 x 2	90	135	172	1	2.5
ES - 80	8400	390	80	210	105	154	176	16	105	6	50	M40 x 2	100	145	185	1	2.5
ES - 90	14300	300	90	230	120	176	202	16	120	7	55	M48 x 2	120	155	200	1	3
ES - 100	19800	250	100	270	140	188	216	16	135	8	60	M52 x 2	130	180	230	2	3
ES - 120	30900	170	120	310	160	226	255	18	140	8	65	M60 x 2	160	205	260	2	3
ES - 150	69000	110	150	400	200	266	300	20	165	8	75	M72 x 2	190	255	315	1.5	4

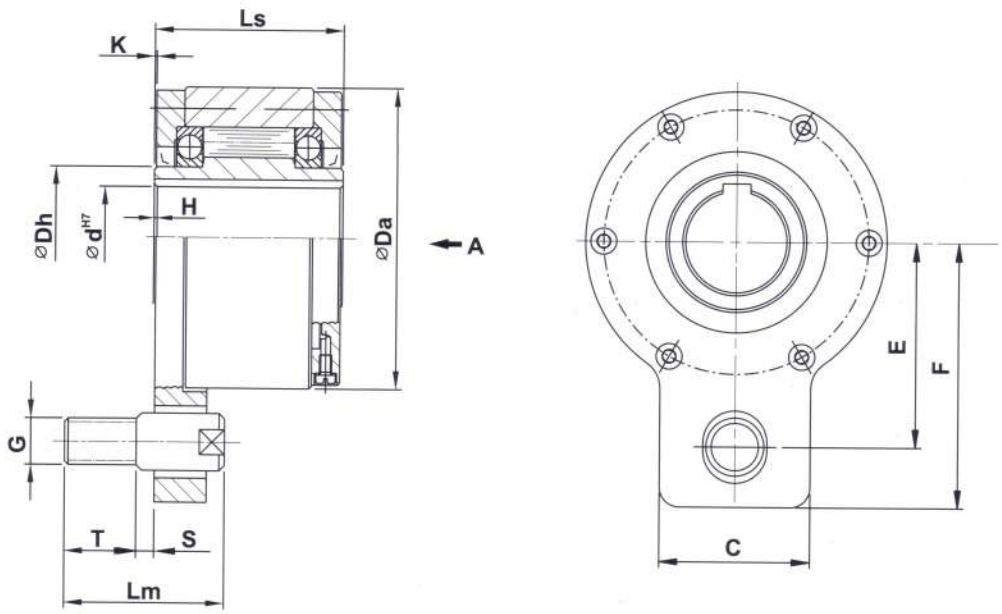
Mounting Example :



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) Tmax = Tn x 2 for momentary load.
5) Keyway as per DIN 6885 Sh. 1.

TS Type Backstops

PRECISION



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Type	Nominal Torque T_n Nm	$n_{max}1$ innerrace rpm	Size d^{H7} mm	Da mm	Dh mm	Ls mm	Lm mm	S mm	T mm	G	C mm	E mm	F mm	K mm	H mm
TS - 12	53	2380	12	62	20	42	40	5	15	M12	35	44	58	1	0.5
TS - 15	123	1790	15	68	25	52	40	5	15	M12	35	47	62	1	0.8
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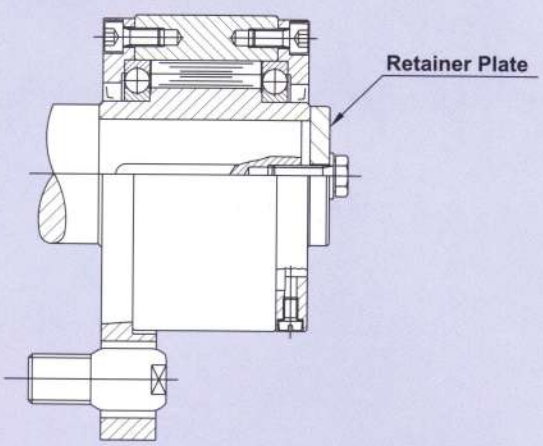

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3) Freewheels with special bore sizes are available.
4) Tmax = Tn x 2 for momentary load.
5) Keyway as per DIN 6885 Sh. 1.

Description
Backstops type ES/TS are completely sealed units with built-in ball bearings. These are mainly used as backstops and indexing freewheels. When used as backstop the torque arm is prevented from rotation by torque bolt fixed to a stationery member of structure. The torque arm and bearings of backstop should not be pre-stressed in any way while fixing torque bolt. When used as indexing freewheel, indexing with outer race is recommended. ES type backstop has more space for lubricating oil and is suitable for use as backstop when mounted on end of a shaft. TS type backstops are suitable for through shaft applications.

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 backstop. Covers of backstop are provided with 3 screws for oil filling, drain and oil level. For Es type backstop shaft, end plate and screw must be sealed to prevent oil leakage through the keyway in inner race.

For good indexing accuracy use hydraulic oil without any additives and of viscosity of about 12mm^2/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 ES/TS type backstops

1. Calculate torque to be transmitted from the formula

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

2. Determine mode of operation (indexing or backstopping)
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 backstop.
6. Select freewheel based on a)Design torque b) Bore size c) Mode of operation d) Speed.

Service Factors

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

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