

Type BW Sprag Elements



The BW double cage sprag elements are complete units capable of high torque transmission within confined spaces. Their unit construction enables easy assembly into cylindrical inner and outer races to provide a complete clutch suitable for most overrunning, backstopping and indexing applications.

The sprags are individually energised by a brass ribbon spring, but their relative movement to one another is controlled by the double cage design which ensures load sharing and prevents de-phasing of the individual sprags.

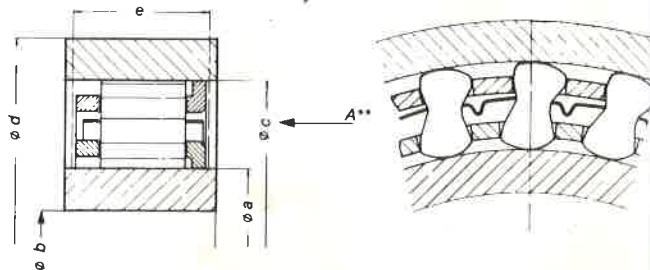
Standard sprags are manufactured from 52100 bearing steels. Two basic designs of sprag are available, disengaging types (Diseng.) where the sprag lifts-off from the inner race when the outer is rotated at high speeds, and engaging types (Eng.) where the contact forces between sprag and inner race increase as the outer race is rotated. The sprag element is designed to rotate with the outer housing, this being essential for correct operation of the unit. In applications with rapid speed changes additional clamping of the element to the housing is essential, and this is achieved by clips/T bars fixed to the outer cage. To reduce wear of sprags during overrunning drag strips may be fixed to the inner cage to rotate this relative to the outer and so reduce sprag contact during overrun.

The table below shows dimensions and construction of standard sprag elements. Items in heavy print are preferred sizes, normally available from stock, which should always be used for new designs unless large production volumes are envisaged.



Applications

BW sprag elements are best applied where high torque transmission is required, but space is limited, and where direct installation into machine parts is required. The clutches double cage design makes them particularly suitable where torsional vibrations are present. Ability to control the operating characteristics has made them suitable for a wide range of applications including Turbine starters, Marine drives, Gearbox backstops, Winches, Printing machines and Machine tools.



Dimensions

Clutch Part No.	Dimensions mm					Sprags		No. Drag Strips	No. Clips or T Box	** Direction Operation	Approx Weight	Nominal Torque (2)
	a*	c	e	b	d	No	Type					
Std Sprag	+0.008 -0.005	+0.013 -0.013	min	max	min							
BWX 133590	22.225	38.887	10	17.3	49.8	12	Diseng.	—	—	CW	30	74
BWX 13143	27.767	44.425	13.5	21.6	57.2	14	Eng.	—	—	CW	55	139
BWX 133392	38.092	54.750	16	29.7	70.4	18	Diseng.	—	—	CCW	85	324
BWX 1310145	41.275	57.937	13.5	32.0	74.2	14	Diseng.	—	3	CW	70	210
BWX 132909	44.450	61.112	16	34.5	78.5	20	Diseng.	2	3	CW	95	424
BWX 1310003	49.721	66.383	13.5	38.8	85.4	22	Diseng.	—	4	CW	85	366
BWX 1310172	54.765	71.427	16	42.6	91.7	24	Eng.	—	—	CW	110	616
BWX 1310226	54.765	71.427	16	42.6	91.7	24	Diseng.	2	4	CW	110	616
BWX 136709	54.765	71.427	21	42.6	91.7	24	Eng.	3	10	CW	160	907
BWX 1310147	54.765	71.427	25.4	42.6	91.7	24	Diseng.	3	8	CW	190	1164
BWX 136324	57.760	74.427	19	44.9	95.8	26	Eng.	—	—	***	130	720
BWX 1310080	72.217	88.882	13.5	56.1	114.3	30	Diseng.	—	4	CW	120	793
BWX 13168	72.217	88.882	21	56.1	114.3	30	Eng.	—	—	CCW	200	1520
BWX 134012	72.217	88.882	21	56.1	114.3	30	Eng.	4	10	CCW	215	1489
BWX 137322	79.698	96.363	25.4	61.9	123.9	34	Diseng.	5	12	CW	280	2396
BWX 134008A	85.776	104.776	25.4	66.8	135.0	34	Eng.	5	17	CW	320	3073
BWX 13261⁽¹⁾	103.231	119.899	16	80.2	154.2	40	Diseng.	6	10	CCW	185	1900
BWX 133403	123.881	142.880	25.4	96.2	183.6	44	Eng.	—	—	CW	460	5740

* For shaft diameters 75mm plus tolerance can be extended to ±0.013mm.

** Direction of rotation of outer race freewheeling viewed from 'A'.

*** These clutches fitted with end bearings.

(1) Note the centering flanges on type BWX 13261 face each other.

(2) Nominal torque can be exceeded to maximum 1.7 x for short periods.