

SO/SX Series - Sprag Clutches - Sizes 300 to 1027

A high precision, clutch suitable for medium to heavy duty applications.

Features:

- All clutches are fitted with high precision heavy duty bearings for arduous duty applications.
- Clutch Sizes 300 to 700 are fitted with ARO sprags to resist vibration and high transient torques and overloads.
- SO Series Clutches, oil lubricated suitable for overrunning, backstopping and medium duty indexing (up to 150 indexes/minute).
- Grease lubrication is available where high inner race overrunning speeds are required or maintenance is difficult.
- SO Series Clutches, grease lubricated for use on general purpose overrunning and backstopping applications.
- SX Series Clutches, oil lubricated designed for medium to heavy indexing applications (over 150 indexes/minute).
- Standard hardened chromised steel sprags for optimal wear resistance on overrunning and backstopping applications.

- Sealed for life options available on all sizes
- Renold DUSTGARD shields available on all sizes for use in constant dust environments
- Fully interchangeable backstop torque arms available on all sizes.

Applications:

- Pump Drives
- Paper Machinery
- Textile Machinery
- Light Duty Hammer Mills
- Fan Drives
- General Industrial Applications

SO/SX Series - Sprag Clutches - General Specification

SO / SX Series Sizes 300 to 700

Overrunning / Indexing / Backstopping

This range of Sprag Clutches are fitted with ball bearings to ensure concentricity and carry radial and axial loads. From Size 300 to 700 the clutches have cage mounted ARO Sprags which are specifically designed to resist the effects of vibration, high transient torque and overloads. Outer race end faces have tapped holes for the attachment of items such as couplings, sprockets, pulleys etc. with the outside diameter of the outer race providing location to ensure concentricity. The clutch must be mounted on a shaft with the inner race driven by a parallel key with top clearance (taper keys must never be used). Please see page 25 & 27 for bore and keyway sizes and recommended shaft diameters. Grease lubrication should be used where maintenance is likely to be infrequent or where high inner race overrunning speeds are required.

SO Series - Oil Lubricated

General purpose Sprag Clutches for overrunning, backstopping and light to medium duty indexing applications (up to 150 indexes per minute). Fitted with lip type seals, for oil retention and protection in hostile environments.

SO Series - Grease Lubricated

General purpose Sprag Clutches incorporating Labyrinth seals for use in overrunning and backstopping applications. Labyrinth seals allow higher overrunning speeds. End face lubrication option is available on many clutch sizes for use in general industrial applications and with the tension release mechanisms.

Sealed for Life and Trash Guard Units available, with application and design approval from Renold Engineering.

SX Series - Oil Lubricated

Indexing Sprag Clutches specifically designed for medium to heavy duty indexing applications (over 150 indexes per min). Grease lubrication option is available.

SO / SX Series Sizes 750 to 1027

Overrunning / Indexing / Backstopping

SO Series - Oil Lubricated

SO Series - Grease Lubricated

SX Series - Oil Lubricated

The SO / SX Series Sprag Clutches Sizes 750 to 1027 offers many of the features of the 300 to 700 sizes and should be used in the same applications where torque and speed permits.



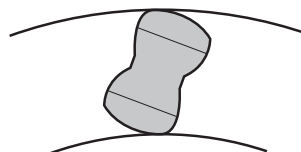
WARNING

If the clutch is used as the sole failsafe device in any application then other factors in the operating environment such as improper use, lack of servicing maintenance or lubrication may cause the clutch to fail causing danger to users, personnel and property.

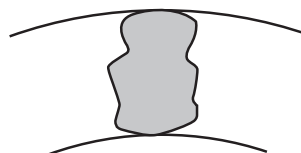
SO - SX Series

ARO Sprags are fitted into the SO and SX Series of Sprag Clutches up to size 700, and assist in resisting the effects of transient overloads and vibrations.

STANDARD SPRAG CLUTCH

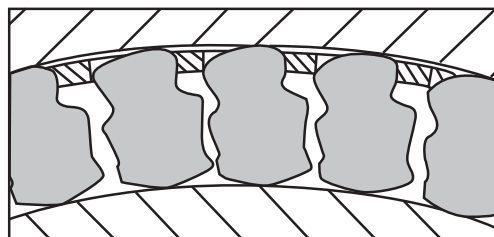


ARO SPRAG CLUTCH



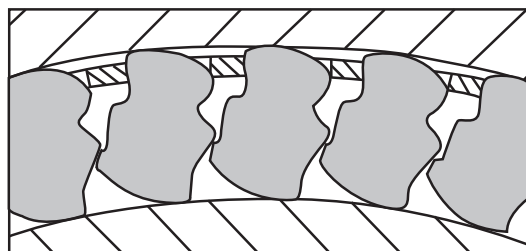
Normal Engagement Condition:

Showing the ARO Sprags in the drive locked position transmitting the rated torque of the particular clutch.

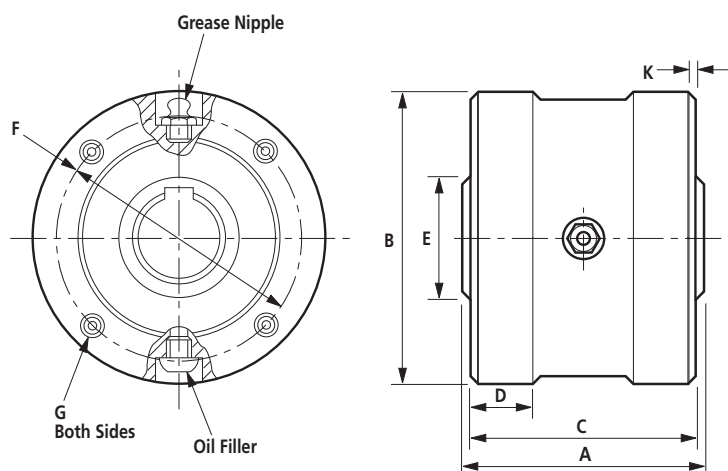


Extreme Overload Condition:

The projected shape at the side of each sprag creates a positive sprag-to-sprag abutment, which assists both rollover and popout.



SO/SX Series - Sprag Clutches - Sizes 300 to 700

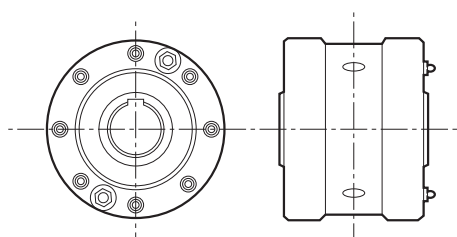


##Hole spacing - SO700
All other clutches
holes equally spaced.

Parallel Keys only must be used, under no circumstances are taper keys acceptable.

Sprag Clutch Reference	A mm in	B (max) mm in	B (min) mm in	C mm in	D mm in	E mm in	F mm in	Number of Holes	G Thread U.N.F.	Depth mm Depth in	K mm in	Weight kg lb
300	63.5 2.50	76.20 3.000	76.15 2.998	60.45 2.38	- -	28.58 1.12	66.67 2.625	4@90°	0.250	12.7 0.500	1.5 0.06	1.6 3.5
400	69.85 2.75	88.900 3.500	88.849 3.498	68.28 2.69	12.70 0.50	30.16 1.19	73.025 2.875	4@90°	0.3125	16 0.625	1.5 0.06	2.7 6.0
500	88.90 3.50	107.950 4.250	107.899 4.248	85.73 3.38	15.88 0.63	44.45 1.75	92.075 3.625	4@90°	0.3125	19 0.75	1.5 0.06	4.8 10.5
600	95.25 3.75	136.525 5.375	136.474 5.373	92.08 3.63	19.05 0.75	63.50 2.50	120.650 4.750	6@60°	0.3125	19 0.75	1.5 0.06	8.6 19.0
700	127.00 5.00	180.975 7.125	180.924 7.123	123.83 4.88	25.40 1.00	88.90 3.50	158.750 6.250	8##	0.375	19 0.75	1.5 0.06	19.0 42.0

SO or SX Sprag Clutch Reference	Torque Capacity Nm lb ft	Maximum Over Running Speed				Max Bore mm in	Resistance After Run-in Nm lb ft
		Lip Seal - Oil Lube		Labyrinth Seal - Grease			
		Inner Race rpm	Outer Race rpm	Inner Race rpm	Outer Race rpm		
300	379 275	3000	900	3600	900	20 0.750	0.18 0.13
400	407 300	2800	850	3600	850	22 0.875	0.27 0.20
500	1585 1168	2500	800	3000	800	32 1.312	0.31 0.23
600	3100 2285	2200	750	2400	750	50 2.000	0.62 0.46
700	6900 5086	1600	450	2000	450	70 2.937	1.56 1.15



Clutch Sizes 600 and 700
are available with end
face lubrication

For Ordering information
and Bore sizes see P26

IMPORTANT
The clutch must run on a shaft with a recommended diameter tolerance of h6 for metric and inch shafts and to the USA shaft tolerance figures on page 51.

WARNING
The clutch must be mounted on a shaft with the inner race driven by a parallel key with top clearance. TAPER KEYS MUST NEVER BE USED.

SO/SX Series - Sprag Clutches - Sizes 300 to 700

Bore Sizes

Sprag Clutch Reference	British Inch Sizes		Metric Sizes		USA Inch Sizes	
	Bore H7 (in)	Keyway W x D (in)	Bore H7 (mm)	Keyway W x D (mm)	Bore H7 (in)	Keyseat W x D (in)
300	0.4375	0.094 x 0.047			0.4375	0.094 x 0.047
	0.500	0.125 x 0.062	16	5 x 2.5	0.500	0.125 x 0.062
	0.625	0.188 x 0.094	18	6 x 3	0.625	0.188 x 0.094
	0.750	0.188 x 0.094	20	6 x 3	0.750	0.188 x 0.094
400	0.500	0.125 x 0.063	14	5 x 2.5	0.4375	0.094 x 0.047
	0.625	0.187 x 0.094	16	5 x 2.5	0.500	0.125 x 0.062
	0.750	0.187 x 0.094	18	6 x 3	0.625	0.188 x 0.094
	0.875	0.187 x 0.094	20	6 x 3	0.750	0.188 x 0.094
			22	6 x 1.7	0.875	0.188 x 0.062
500	0.750	0.187 x 0.094	22	6 x 3	0.750	0.188 x 0.094
	0.875	0.187 x 0.094	24	8 x 3.5	0.875	0.188 x 0.094
	1.000	0.250 x 0.125	25	8 x 3.5	1.000	0.250 x 0.125
	1.125	0.250 x 0.125	28	8 x 3.5	1.125	0.250 x 0.125
	1.250	0.250 x 0.125	30	8 x 3.5	1.250	0.250 x 0.125
	1.312	0.250 x 0.088	32	10 x 3.2	1.3125	0.250 x 0.094
600	1.125	0.250 x 0.125	30	8 x 3.5	1.250	0.250 x 0.125
	1.250	0.250 x 0.125	32	10 x 4	1.375	0.375 x 0.188
	1.375	0.375 x 0.188	35	10 x 4	1.4375	0.375 x 0.188
	1.500	0.375 x 0.188	38	10 x 4	1.500	0.375 x 0.188
	1.625	0.375 x 0.188	40	12 x 4	1.625	0.375 x 0.188
	1.750	0.375 x 0.188	45	14 x 3.8	1.750	0.375 x 0.188
	1.875	0.500 x 0.156	48	14 x 4.5	1.875	0.375 x 0.188
	2.000	0.500 x 0.156	50	14 x 3.5	1.9375	0.375 x 0.188
					2.000	0.375 x 0.125*
700	1.9375	0.500 x 0.250	50	14 x 4.3	1.875	0.375 x 0.188
	2.000	0.500 x 0.250	55	16 x 4.6	1.9375	0.500 x 0.250
	2.250	0.625 x 0.313	60	18 x 5.4	2.000	0.500 x 0.250
	2.375	0.625 x 0.313	65	18 x 5.4	2.125	0.500 x 0.250
	2.4375	0.625 x 0.219	70	20 x 4.8	2.250	0.500 x 0.250
	2.500	0.625 x 0.313			2.375	0.625 x 0.313
	2.750	0.625 x 0.219			2.4375	0.625 x 0.313**
	2.9375	0.625 x 0.172			2.500	0.625 x 0.313
					2.625	0.625 x 0.250
					2.750	0.625 x 0.219
					2.9375	0.625 x 0.125

ORDERING INFORMATION

Clutch Reference	Part Numbers		
	Grease lubricated	Oil lubricated	Without seal
OVERRUNNING/BACKSTOPPING			
SO300	6481301	6481302	6481303
SO400	6481401	6481402	6481403
SO500	6481501	6481502	6481503
SO600	6481601	6481602	6481603
SO700	6481701	6481702	6481703
INDEXING			
SX300	6482301	6482302	6482303
SX400	6482401	6482402	6482403
SX500	6482501	6482502	6482503
SX600	6482601	6482602	6482603
SX700	6482701	6482702	6482703

For British inch and metric sizes, recommend shaft tolerances are 'h6'.
For American Inch sizes, suffix bore 'A', see table on page 51 for bore and recommended shaft tolerances.

All keys must be parallel with top clearance - never use taper keys.

* SO / SX 600 Alternative keyseat 0.500" x 0.250"

** SO / SX 700 Alternative keyseat 0.500" x 0.250"

When ordering please specify clutch reference/part number, bore size required and keyway required if non standard.

eg. SO600/1.375" or 6481602/1.375 (suffix 'A' if American)