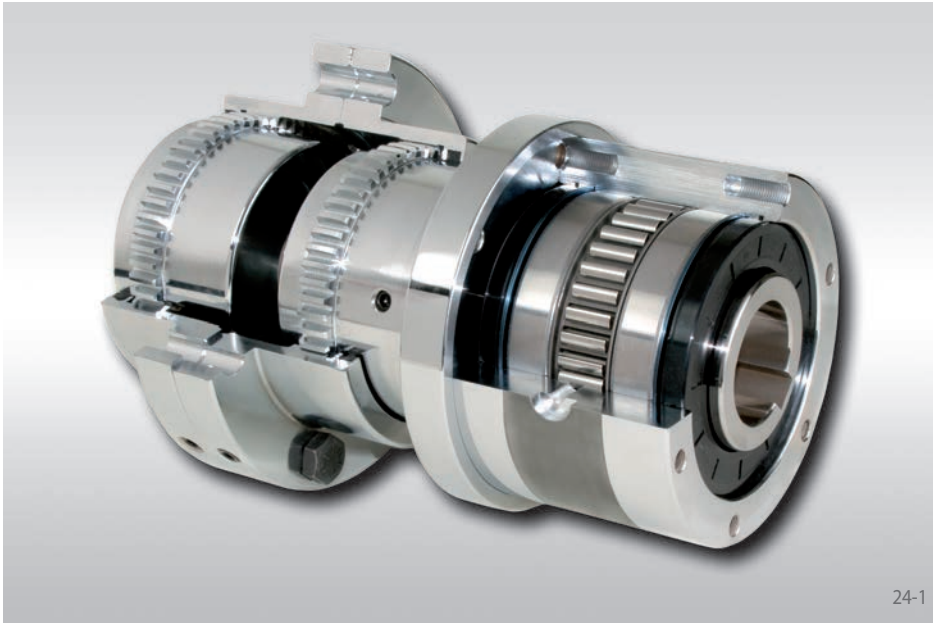


Complete Freewheels FR ... CA

with gear coupling
with sprags



24-1

Application as

▶ Overrunning Clutch

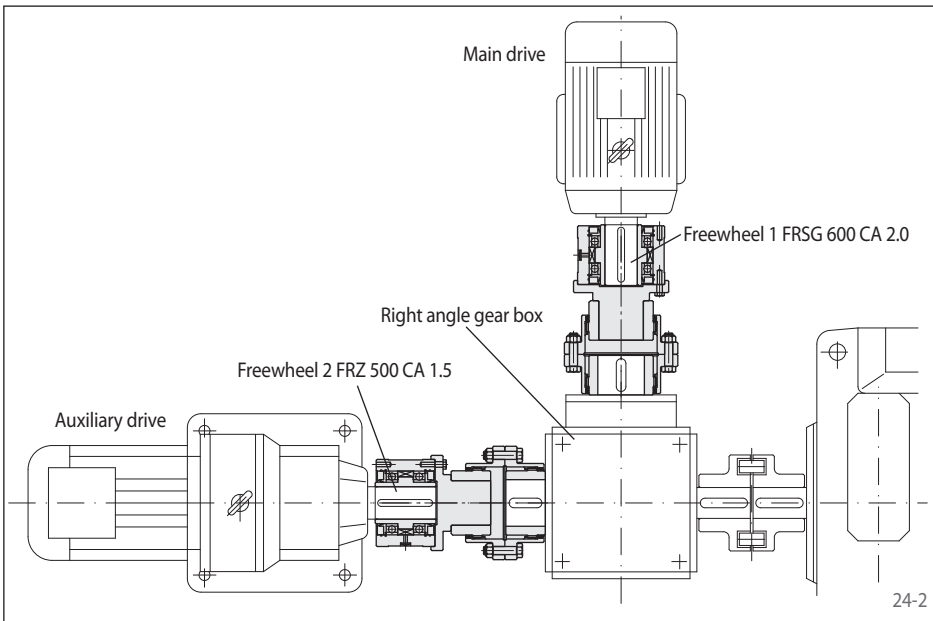
Features

Complete Freewheel FR ... CA incorporate a freewheel FR ... and a gear coupling. Freewheels are supplied oil or grease lubricated.

Maximum torques up to 55000 lb-ft.

Bores up to 7 inch.

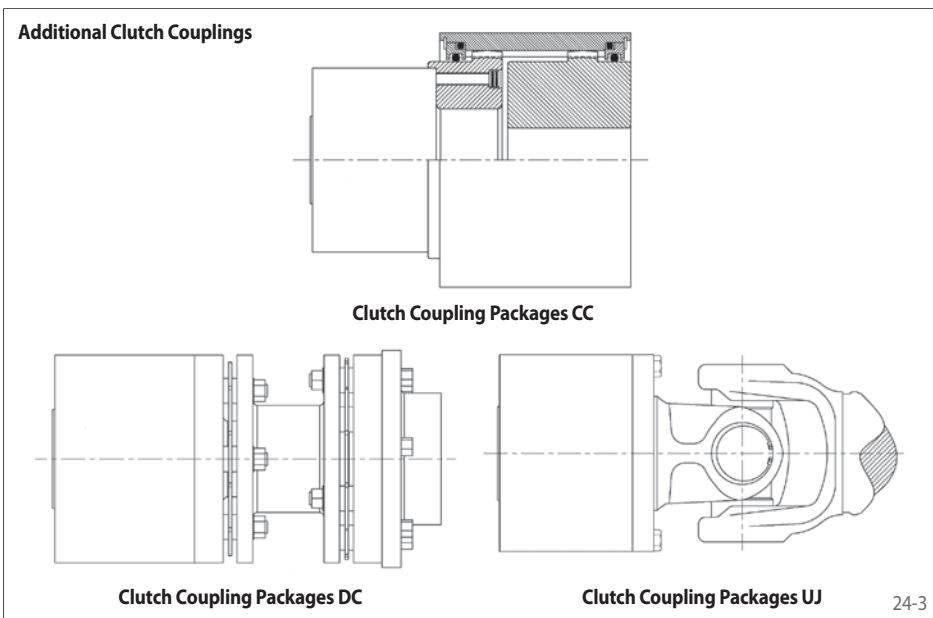
Complete Freewheels FR ... CA allow for removal of the assembly without moving the connected equipment. The clutch should always be mounted on the low temperature shaft of the application.



24-2

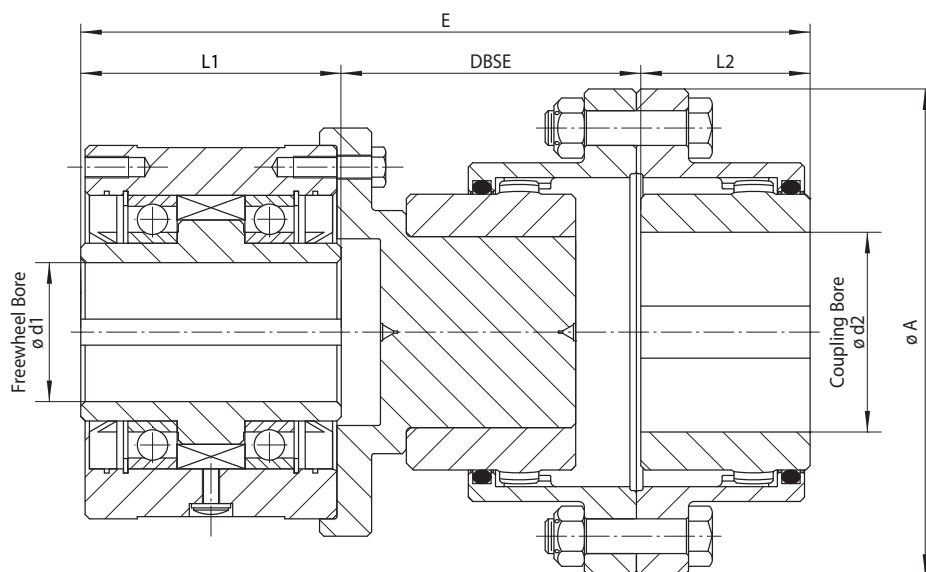
Application Example

Two Complete Freewheels FR ... CA with gear coupling as overrunning clutches in the drive unit of a tube mill with additional auxiliary drive. A freewheel FRSG 600 CA 2.0 (Freewheel 1) is arranged between the main drive and the right angle gear box. A freewheel FRZ 500 CA 1.5 (Freewheel 2) with sprag lift-off Z (page 26) is positioned between the auxiliary drive and the right angle gear box. If the auxiliary drive is operating, Freewheel 2 works in the driving operation and the Freewheel 1 overruns at a low speed (freewheel operation). When driving via the main drive, the unit is driven thru Freewheel 1 (driving operation) Freewheel 2 overruns and automatically disengages the auxiliary drive (freewheeling operation). With the high speed, the type with sprag lift-off Z is used. There is no contact of the sprags during freewheeling and therefore no wear.



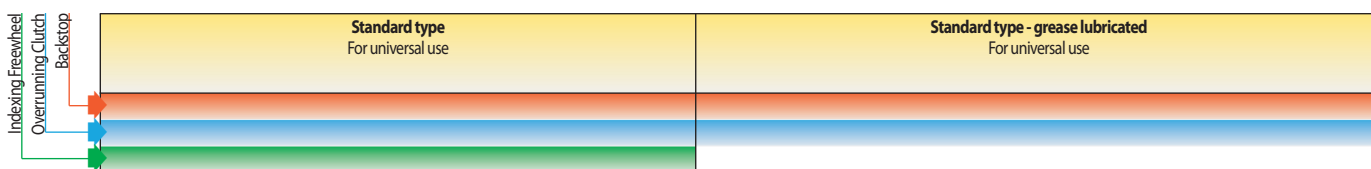
24-3

with gear coupling
with sprags



Freewheel FR ... CA

25-1



Freewheel Size	Coupling Size	Maximum torque M _M lb-ft	Nominal torque M _N lb-ft	Max. speed		Freewheel Size	Maximum torque M _M lb-ft	Nominal torque M _N lb-ft	Max. speed	
				inner ring freewheels/ overruns rpm	outer ring freewheels/ overruns rpm				inner ring freewheels/ overruns rpm	outer ring freewheels/ overruns rpm
FRS 300 CA	F 1.0	420	210	2500	2600	FRSG 300 CA	420	210	3600	3600
FRS 400 CA	F 1.0	670	335	1900	2100	FRSG 400 CA	670	335	3600	3600
FRS 500 CA	F 1.5	1600	800	1400	1900	FRSG 500 CA	1600	800	3600	3600
FRS 550 CA	F 2.0	3050	1525	1175	1600	FRSG 550 CA	3050	1525	3600	3600
FRS 600 CA	F 2.0	3900	1950	1100	1500	FRSG 600 CA	3900	1950	3600	3600
FRS 650 CA	F 2.5	5400	2700	900	1250	FRSG 650 CA	5400	2700	3600	3600
FRS 700 CA	F 3.0	11050	5525	790	1150	FRSG 700 CA	11050	5525	1800	1800
FRS 750 CA	F 3.5	18700	9350	790	1150	FRSG 750 CA	18700	9350	1800	1800
FRS 775 CA	F 4.0	17000	8500	750	1050	FRSG 775 CA	17000	8500	1800	1800
FRS 800 CA	F 4.0	22200	11100	700	950	FRSG 800 CA	22200	11100	1800	1800
FRS 900 CA	F 4.5	33600	16800	700	950	FRSG 900 CA	33600	16800	1200	1200
FRS 1000 CA	F 5.0	55000	27500	630	800	FRSG 1000 CA	55000	27500	1200	1200

See page 9 for determination of selection torque.

Freewheel Size	Bore max.		A	DBSE	E	L1	L2	Weight*
	Freewheel d1 inch	Coupling d2 inch						
FR ... 300 CA	0.750	1.750	4.560	3.500	7.688	2.500	1.688	15
FR ... 400 CA	1.125	1.750	4.560	3.750	8.188	2.750	1.688	18
FR ... 500 CA	1.312	2.313	6.000	4.188	9.625	3.500	1.938	32
FR ... 550 CA	1.625	2.875	7.000	5.000	10.688	3.250	2.438	46
FR ... 600 CA	2.000	2.875	7.000	4.313	10.500	3.750	2.438	55
FR ... 650 CA	2.500	3.750	8.375	5.125	11.656	3.500	3.031	91
FR ... 700 CA	2.938	4.375	9.438	6.875	15.469	5.000	3.594	137
FR ... 750 CA	3.438	5.000	11.000	8.750	18.938	6.000	4.188	235
FR ... 775 CA	3.750	5.875	12.500	9.500	20.250	6.000	4.750	321
FR ... 800 CA	4.500	5.875	12.500	7.688	18.438	6.000	4.750	343
FR ... 900 CA	5.438	6.500	13.625	9.125	20.813	6.375	5.313	487
FR ... 1000 CA	7.000	7.125	15.500	10.125	22.781	6.625	6.031	740

* Note Weights are based on Solid Coupling hubs. Weights will vary with required bores. • Keyway dimensions upon request by customers.

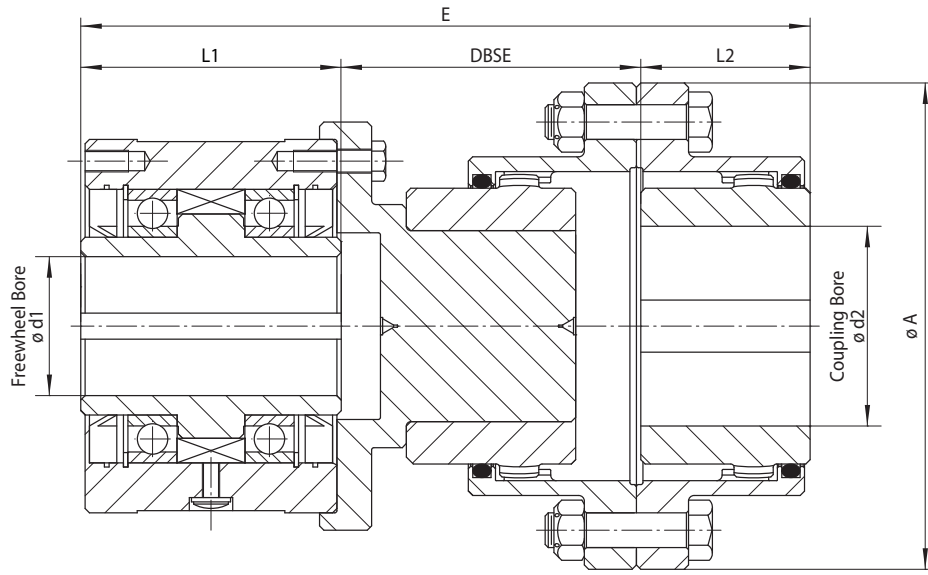
Mounting

The gear coupling and stub adapter with fasteners are supplied loose. Depending on the desired freewheeling direction, the gear coupling can be mounted on either the drive or driven shaft.

Labyrinth Seals

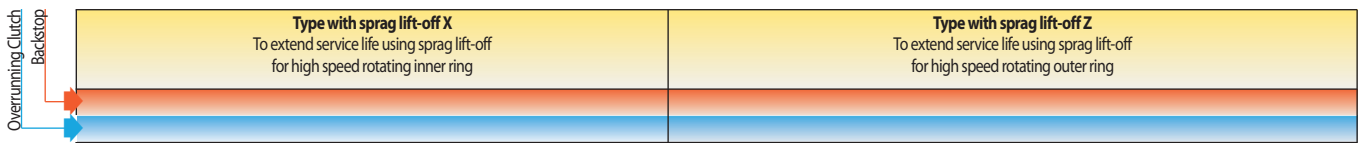
Labyrinth seals are available to provide additional protection for harsh environments.

with gear coupling
with sprag lift-off ...



Freewheel FR ... CA

26-1



Freewheel Size	Coupling Size	Maximum torque M_M lb-ft	Nominal torque M_N lb-ft	Sprag lift-off at inner ring speed rpm	Max. speed		Freewheel Size	Max. torque M_M lb-ft	Nominal torque M_N lb-ft	Sprag lift-off at outer ring speed rpm	Max. speed	
					inner ring freewheels/ overruns rpm	outer ring drives rpm					outer ring freewheels/ overruns rpm	inner ring drives rpm
FRX 400 CA	F 1.0	250	125	860	4000	340	FRZ 400 CA	560	280	800	2600	320
FRX 500 CA	F 1.5	850	425	750	4000	300	FRZ 500 CA	1070	535	1400	2050	560
FRX 550 CA	F 2.0	1500	750	700	4000	280	FRZ 550 CA	2760	1380	1550	1800	620
FRX 600 CA	F 2.0	2000	1000	670	4000	265	FRZ 600 CA	3530	1765	1450	1650	580
FRX 650 CA	F 2.5	3500	1750	610	3100	240	FRZ 650 CA	5000	2500	1300	1400	520
FRX 700 CA	F 3.0	8100	4050	350	2600	140	FRZ 700 CA	10500	5250	1160	1200	465
FRX 750 CA	F 3.5	14600	7300	320	2400	125	FRZ 750 CA	17500	8750	1160	1200	465
FRX 775 CA	F 4.0	14800	7400	320	2100	125	FRZ 775 CA	15000	6500	950	1050	380
FRX 800 CA	F 4.0	29000	14500	250	1800	100	FRZ 800 CA	17400	8700	880	975	350
FRX 900 CA	F 4.5	30000	15000	250	650	100	FRZ 900 CA	26000	13000	720	925	288

See page 9 for determination of selection torque.

Freewheel Size	Bore max.		A inch	DBSE inch	E inch	L1 inch	L2 inch	Weight* lbs
	Freewheel d1 inch	Coupling d2 inch						
FR ... 400 CA	1.125	1.750	4.560	3.750	8.188	2.750	1.688	18
FR ... 500 CA	1.312	2.313	6.000	4.188	9.625	3.500	1.938	32
FR ... 550 CA	1.625	2.875	7.000	5.000	10.688	3.250	2.438	46
FR ... 600 CA	2.000	2.875	7.000	4.313	10.500	3.750	2.438	55
FR ... 650 CA	2.500	3.750	8.375	5.125	11.656	3.500	3.031	91
FR ... 700 CA	2.938	4.375	9.438	6.875	15.469	5.000	3.594	137
FR ... 750 CA	3.438	5.000	11.000	8.750	18.938	6.000	4.188	235
FR ... 775 CA	3.750	5.875	12.500	9.500	20.250	6.000	4.750	321
FR ... 800 CA	4.500	5.875	12.500	7.688	18.438	6.000	4.750	343
FR ... 900 CA	5.438	6.500	13.625	9.125	20.813	6.375	5.313	487

* Note Weights are based on Solid Coupling hubs. Weights will vary with required bores. • Keyway dimensions upon request by customers.