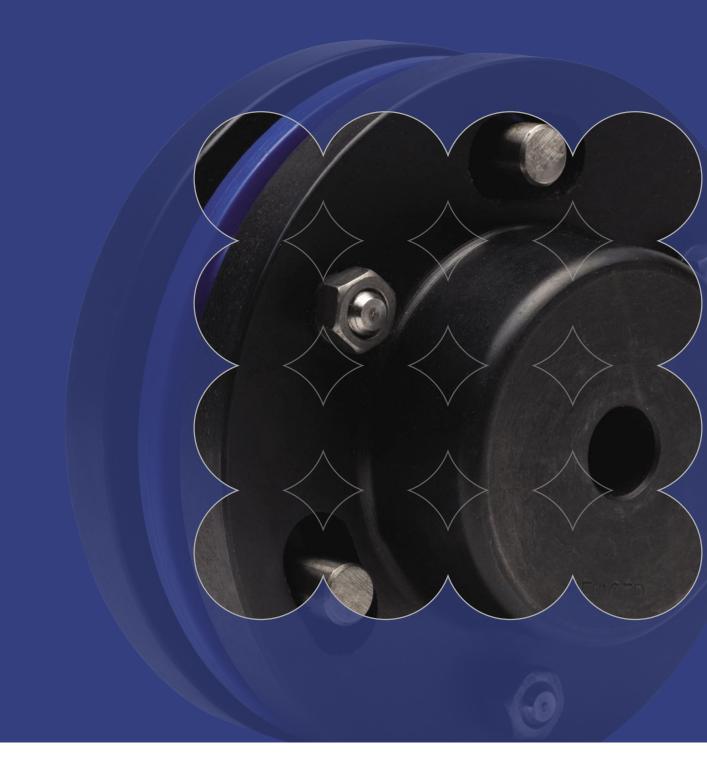
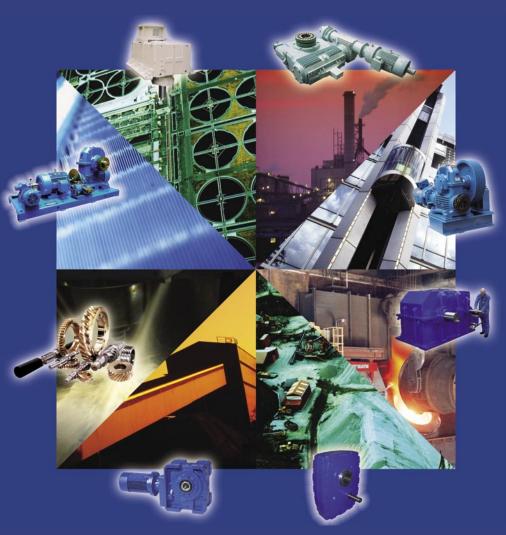
# Discflex Couplings





# RENOLD

Strength through Service
Renold Gears has been manufacturing high quality, high specification gear units for over 100 years and has always been at the leading edge of gear technology with innovative products and power transmission solutions.



# Interchangeability

Many of the products from Renold Gears are dimensionally interchangeable with other manufacturers gear units, allowing a trouble free replacement of gearboxes, in most cases upgrading the capacity through state of the art technology and materials.

### **Custom Made**

Renold Gears is unique in it's ability to offer custom made products designed to meet customers exacting requirements without compromise on availability and cost. From complete package solutions to individual precision replacement gears, all can be tailor made to meet specific applicational requirements.

### **Available**

The most popular ranges of gearboxes are available from local distribution stock, backed up by extensive stocks from our manufacturing plant in the UK.



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### The **RENOLD** Collection

















### The **RENOLD** Collection







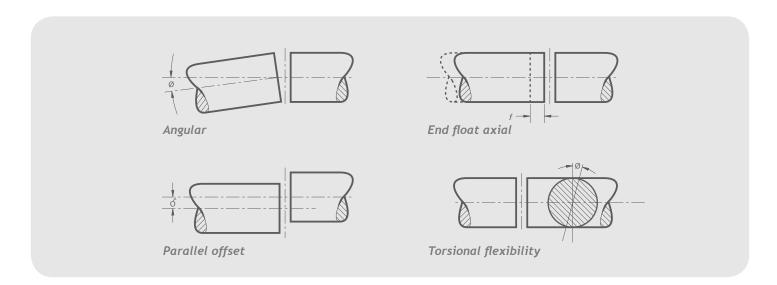








### **Coupling Selection Guide**



Flexible Couplings should be used to accommodate any combination of misalignment conditions described below.

At installation all couplings should be aligned as near to perfect as possible.

#### 1. Angular

Angular misalignment is present when the shaft axes are inclined one to the other. Its magnitude can be measured at the coupling faces.

### 2. Parallel Offset

Parallel misalignment is present when the axes of the driving and driven shafts are parallel but laterally displaced.

#### 3. End float (axial)

End float is the ability to accommodate a relative axial displacement of the connected shafts; achieved by sliding members or flexing of resilient components.

#### 4. Torsional flexibility

Torsional flexibility is a design feature necessary to permit shock and impulsive loadings to be suitably dampened. It is achieved by the provision of a flexible medium such as rubber, springs, etc., between the two halves of the coupling.

#### Selection

In order to select the correct type and size of coupling, the following basic information should be known:

### Power to be transmitted

- (a) Normal.
- (b) Maximum.
- (c) Whether continuous or intermittent.

#### Characteristics of the drive

- (a) Type of prime mover and associated equipment.
- (b) Degree of impulsiveness of driven load.

#### Speed in revolutions per minute

- (a) At which normal power is transmitted.
- (b) At which maximum power is transmitted.
- (c) Maximum speed.

#### Dimensions of shafts to be connected

- (a) Actual diameter.
- (b) Length of shaft extension.
- (c) Full keyway particulars.

#### Selection

When the input drive is not steady (i.e. not from an electric motor), and/or the driven load is impulsive, the actual power is multiplied by a Service Factor from the Table 2 (page 13).

#### **Selection Procedure**

- 1. Nominal power in kW to be transmitted = K.
- 2. Select appropriate load classification from Table 1, denoted as either S, M or H.
- 3. From Table 2, establish Service Factor(s) to be applied, taking into account hours of operation/day and prime mover = fD.
- 4. From Table 3 select factor for the required frequency of starts/hr = fS.
- 5. Selection Power  $Ks = K \times fD \times fS$
- 6. Equivalent power at 100 RPM =  $\frac{\text{Ks x } 100}{\text{RPM}}$
- 7. Check that coupling selected will accept the required shaft diameters. Should shaft diameter exceed maximum permissible, then re-select using next larger size of coupling.

## **Load Classification by Application**

able 1		Dry dock cranes	(2)	Planer feed chains	W	Presses	N
Agitators		Main hoist	(2)	Planer floor chains	M	Pulp machine reel	Ν
	S	Auxiliary hoist	(2)	Planer tilting hoist	М	Stock chest	Ν
Pure liquids		Boom, luffing	(2)	Re-saw merry-go-round conveyor	M	Suction roll	Ν
Liquids and solids	W	Rotating, swing or slew	(3)	Roll cases	Н	Washers and thickeners	٨
Liquids - variable density	М	Tracking, drive wheels	(4)	Slab conveyor	Н	Winders	٨
Blowers		Elevators		Small waste conveyor-belt	S	Printing presses	*
Centrifugal	S	Bucket - uniform load	S	Small waste conveyor-chain	М	Pullers	
Lobe	M	Bucket - heavy load	M	Sorting table	М		4
Vane	S	Bucket - continuous	S	Tipple hoist conveyor	M	Barge haul	H
				Tipple hoist drive	M	Pumps	
Brewing and distilling	_	Centrifugal discharge	S		M	Centrifugal	S
Bottling machinery	S	Escalators	S	Transfer conveyors		Proportioning	Ν
Brew kettles - continuous duty	S	Freight	М	Transfer rolls	W	Reciprocating	
Cookers - continuous duty	S	Gravity discharge	S	Tray drive	M	single acting: 3 or more cylinders	Ν
Mash tubs - continuous duty	S	Man lifts	*	Trimmer feed	М	double acting: 2 or more cylinders	٨
Scale hopper - frequent starts	M	Passenger	*	Waste conveyor	M	single acting: 1 or 2 cylinders	*
Can filling machines	S	Extruders (plastic)		Machine tools			4
<u> </u>		Film	S	Bending roll	М	double acting: single cylinder	
Cane knives (1)	М			Punch press - gear driven	Н	Rotary - gear type	S
Car dumpers	Н	Sheet	S		*	Rotary - lobe, vane	5
Car pullers	М	Coating	S	Notching press - belt drive		Rubber and plastics industries	
Clarifiers	S	Rods	S	Plate planners	Н	Crackers (1)	F
		Tubing	S	Tapping machine	Н	Laboratory equipment	N
Classifiers	М	Blow moulders	M	Other machine tools		Mixed mills (1)	,,
Clay working machinery		Pre-plasticiers	M	Main drives	М		Λ
Brick press	Н	Fans		Auxiliary drives	S	Refiners (1)	
Briguette machine	H	Centrifugal	S	Metal mills		Rubber calenders (1)	٨
Clay working machinery	M		3	Drawn bench carriage and		Rubber mill, 2 on line (1)	N
Pug mill	M	Cooling towers	*	main drive	AA	Rubber mill, 3 on line (1)	S
	IVI	Induced draft			M	Sheeter (1)	Ν
Compressors		Forced draft	*	Pinch, dryer and scrubber	*	Tyre building machines	*
Centrifugal	S	Induced draft	M	rolls, reversing		Tyre and tube press openers	*
_obe	M	Large, mine etc.	M	Slitters	М	Tubers and strainers (1)	Ν
Reciprocating - multi-cylinder	M	Large, industrial	М	Table conveyors nonreversing		Warming mills (1)	N
Reciprocating - single cylinder	Н	Light, small diameter	S	group drives	M		
Conveyors - uniformly loaded or fo		Feeders		Individual drives	Н	Sand muller	٨
•				Reversing	*	Screens	
Apron	S	Apron	W	Wire drawing and flattening machine	М	Air washing	S
Assembly	S	Belt	M	Wire winding machine	M	Rotary, stone or gravel	Ν
Belt	S	Disc	S	-	741	Travelling water intake	S
Bucket	S	Reciprocating	Н	Mills, rotary type		Sewage disposal equipment	
Chain	S	Screw	M	Ball (1)	М	Bar screens	S
Flight	S	Food industry		Cement kilns (1)	M		
Oven	S	Beef slicer	М	Dryers and coolers (1)	M	Chemical feeders	S
Screw	S	Cereal cooker	S	Kilns other than cement	M	Collectors	S
Conveyors - heavy duty		Dough mixer	M	Pebble (1)	М	Dewatering screws	Ν
				Rod, plain & wedge bar (1)	M	Scum breakers	Ν
not uniformly fed		Meat grinder	М	Tumbling barrels	Н	Slow or rapid mixers	Ν
Apron	W	Generators - not welding	S	•		Thickeners	Ν
Assembly	M	Hammer mills	Н	Mixers		Vacuum filters	Ν
Belt	M	Hoists	•	Concrete mixers continuous	M	Slab pushers	N
Bucket	M			Concrete mixers intermittent	М		
Chain	M	Heavy duty	Н	Constant density	S	Steering gear	*
Flight	M	Medium duty	M	Variable density	М	Stokers	S
_ive roll	*	Skip hoist	M	Oil industry		Sugar industry	
Oven	М	Laundry		Chillers	М		
		Washers - reversing	М		//\ *	Cane knives (1)	N
Reciprocating	H	Tumblers	W	Oil well pumping		Crushers (1)	٨
Screw	W	The state of the s	///	Paraffin filter press	W	Mills (1)	Ν
Shaker	Н	Line shafts		Rotary kilns	М	Textile industry	
Crane Drives - not dry dock		Driving processing equipment	М	Paper mills		Batchers	Ν
Main hoists	S	Light	S	Agitators (mixers)	М	Calenders	٨
Bridge travel	*	Other line shafts	S	Barker - auxiliaries hydraulic	M	Cards	N
Trolley travel	*	Lumber industry		Barker - mechanical	Н		
•		Barkers, hydraulic, mechanical	М			Dry cans	٨
Crushers				Barking drum	Н	Dryers	N
Ore	Н	Burner conveyor	W	Beater and pulper	W	Dyeing machinery	٨
Stone	Н	Chain saw and drag saw	Н	Bleacher	S	Looms	٨
Sugar (1)	M	Chain transfer	Н	Calenders	М	Mangles	٨
Oredges		Craneway transfer	Н	Calenders - super	Н	Nappers	٨
Table reels	М	De-barking drum	Н	Converting machine except		Pads	٨
		Edger feed	M	cutters, platers	M	Range drives	,
Conveyors	W	Gang feed	M	Conveyors	S	Slashers	٨
Cutter head drives	Н	Green chain	M				
lig drives	Н			Couch	W	Soapers	٨
Manoeuvring winches	M	Live rolls	Н	Cutters, platers	Н	Spinners	٨
Pumps	M	Log deck	Н	Cylinders	М	Tenter frames	٨
Screen drive	H	Log haul - incline	Н	Dryers	М	Washers	٨
Stackers	M	Log haul - well type	Н	Fell stretcher	М	Winders	٨
	M	Log turning device	Н	Fell whipper	Н	Windlass	*
	141						
Jtility winches		<ul> <li>Main log conveyor</li> </ul>	Н	Jordans	M		

### Key

S = Steady (1) = Select on 24 hours per day service factor only.

= Steady (1) = Select on 24 hours per day service factor only.

1 = Medium Impulsive (2) = Use service factor of 1.00 for any duration of service.

H = Highly Impulsive (3) = Use service factor of 1.25 for any duration of service.

\* = Refer to Renold

(4) = Use service factor of 1.50 for any duration of service.

#### Note

Machinery characteristics and service factors listed in this catalogue are a guide only. Some applications (e.g. constant power) may require special considerations. Please consult Renold.

### Service Factors and Selection

**Table 2** Service Factor (fp)

Prime mover	Driven machinery characteristics								
(Drive input)	Duration service hours/day	Steady load	Medium impulsive	Highly impulsive					
Electric, air & hydraulic Motors or steam turbine (Steady input)	Intermittent - 3hrs/day max 3 - 10 over 10	0.90 1.00 1.25	1.00 1.25 1.50	1.50 1.75 2.00					
Multi-cylinder I.C. engine (Medium impulsive input)	Intermittent - 3hrs/day max 3 - 10 over 10	1.00 1.25 1.50	1.25 1.50 1.75	1.75 2.00 2.25					
Single-cylinder I.C. engine (Highly impulsive input)	Intermittent - 3hrs/day max 3 - 10 over 10	1.25 1.50 1.75	1.50 1.75 2.00	2.00 2.25 2.50					

### **Table 3** Factor for Starts/Hour(fs)

No of starts per hour	0-1	1-30	30-60	60-
Factor	1,0	1,2	1,3	1,5

### **Example of Selection**

Coupling is required to transmit 7.5kW at 1440 RPM to connect an electric motor to a gear box driving a chain conveyor running for 18 hours/day and starting 15 times/hour. Shaft diameters /55mm respectively.

K = 7.5kW

From Table 1 Load Classification = M (medium impulsive)

From Table 2 Service Factor fp = 1.5

From Table 3  $f_S = 1.2$ 

Therefore selection kW is:-

 $Ks = K \times f_D \times fS$ = 7.5 x 1.5 x 1.2

= 13.5 kW

Equivalent power at 100 RPM =  $\frac{\text{Ks x 100}}{\text{RPM}}$ 

= 1<u>3.5 x 100</u> 1440

= 0.9375kW @ 100RPM

From page 17 selection is RSC110 (644911) (maximum bore 55 mm).



It is the responsibility of the system designer to ensure that the application of the coupling does not endanger the other constituent components in the system. Service factors given are an initial selection guide.

### **Key Stress**

- 1. Permissible key stress = 70N/mm<sup>2</sup>
- 2. Nominal torque  $T_{KM} = K \times 9550 / RPM Nm$
- 3. Force at key  $F = T_{KM} / r$
- 4. Shaft Rad r. metres
- 5. Key area A = J x HUB length mm (Obtain from relevant catalogue page).
- 6. Key stress  $fk = F/A N/mm^2$
- 7. If resultant stress is less than 70 N/mm<sup>2</sup> key stress is acceptable.

If resultant fk is greater than 70, consider either two keyways or extending hub length.

8. Example:

 $T_{KM} = 7.5 \times 9550/1440 = 49.7Nm$ 

r = 55/2 = 27.5mm ÷ 1000 = 0.0275m

F = 49.7/0.0275 = 1741N

 $A = 16 \times 45 = 720 \text{mm}^2$ 

fk = 1741/720 = N/mm2

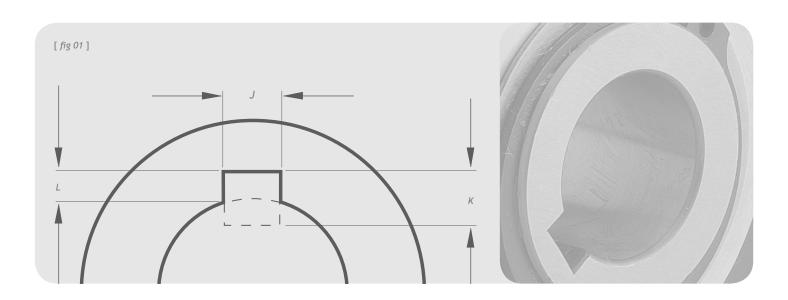
Selection is therefore good.

For operation above 80% of the declared maximum coupling speed it is recommended that the coupling is dynamically balanced.



Rotating equipment must be provided with a suitable guard before operating or injury may result.

# **Key and Keyway Dimensions**



Metric (mm)

Keyways comply with BS4235: Part 1: 1972

Sha	ıft dia.	Key & keyway				
Over	Incl.	J	K	L		
6	8	2	2	1.0		
8	10	3	3	1.4		
10	12	4	4	1.8		
12	17	5	5	2.3		
17	22	6	6	2.8		
22	30	8	7	3.3		
30	38	10	8	3.3		
38	44	12	8	3.3		
44	50	14	9	3.8		
50	58	16	10	4.3		
58	65	18	11	4.4		
65	75	20	12	4.9		
75	85	22	14	5.4		
85	95	25	14	5.4		
95	110	28	16	6.4		
110	130	32	18	7.4		
130	150	36	20	8.4		
150	170	40	22	9.4		
170	200	45	25	10.4		
200	230	50	28	11.4		

Imperial (inches)

Keyways comply with BS46: Part 1: 1958

,,									
Sha	ıft dia.	Key & keyway							
Over	Incl.	J	K	L					
0.25	0.05	0.125	0.125	0.060					
0.50	0.75	0.187	0.187	0.088					
0.75	1.00	0.250	0.250	0.115					
1.00	1.25	0.312	0.250	0.112					
1.25	1.50	0.375	0.250	0.108					
1.50	1.75	0.437	0.312	0.135					
1.75	2.00	0.500	0.312	0.131					
2.00	2.50	0.625	0.437	0.185					
2.50	3.00	0.750	0.500	0.209					
3.00	3.50	0.875	0.625	0.264					
3.50	4.00	1.000	0.750	0.318					
4.00	5.00	1.250	0.875	0.366					
5.00	6.00	1.500	1.000	0.412					

Keyway dimensions [ fig 01 ]

Parallel keyways are supplied unless customer states otherwise.

### **Discflex**



A general purpose fail safe, torsionally flexible coupling, offering the option of either urethane or reinforced rubber disc, as the flexible element.

### Coupling capacity

- Maximum power @ 100RPM: 45kW
- Maximum torque: 4298Nm

### Features and benefits

- Compact design, dimensionally small yet high power capacity.
- Torsionally flexible shock absorbing, extending machine life.
- Maintenance free minimum number of wearing parts.
- Misalignment capabilities allowing flexibility installation.
- Alternative flexible elements available for wide design choice.

- Optional fire retardent anti-static elements for use in flameproof environment.
- Taper bush bores available for ease of maintenance.

### Standard range comprises

• Shaft to Shaft

### **Applications**

- Bottling Machines
- Compressors
- Mixers
- Pumps
- Screens
- General Industrial Applications

### Construction details

Cast Iron Half Bodies
Urethane Disc
Temp Range -40 to +80°C
Rubber Reinforced Disc
Temp Range -40 to +90°C

### General misalignments

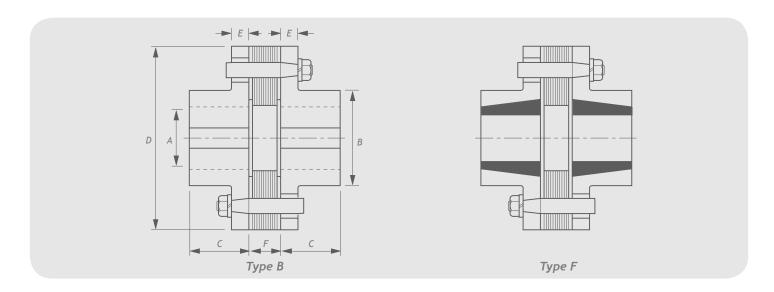
#### Parallel Offset

Max 0.5mm

### Angular

Max 1°

# Discflex



Catalogue	Power/	Torque	Speed	Тур	е В	Type F					Dime	nsions			End
number	100rpm	nominal	max*	Во	re	Bush	Вс	re	В	С	D	Е	F	Mass	float
	kW	Nm	rpm	Max	Min	size	Max	Min	mm	mm	mm	mm	mm	kg	mm
D41# # N #	0.75	72	2900	32	12	TB1008	25	9	58	25	104	11	16	2.1	1.8
D52# # N #	1.5	143											22	4.9	2.5
D52# # S #	2.25	215	2250	42	19	TB1215	32	11	72	41	133	13	26	5.0	2.5
D52# #W #	3	287											31	5.1	2.5
D71# # N #	3.75	358											23	11.0	3
D71# # S #	5.25	501	1650	60	28	TB2017	50	18	102	48	181	16	27	11.1	3
D71# #W #	7.5	716											32	11.2	3
D89# # N #	9	860											28	20.8	3.8
D89# # S #	12	1146	1300	75	32	TB2525	60	19	121	70	225	18	40	21.0	3.8
D89# #W #	15	1433											47	21.7	3.8
D108# # NR	19	1791											47	40.0	4.6
D108# # SR	23	2149	1050	95	38	TB3030	75	35	155	83	274	22	51	40.0	4.6
D108# #WR	26	2507											63	41.0	4.6
D127# # NR	30	2865											53	65.0	5.3
D127# # SR	38	3581	900	110	55	TB3535	90	35	185	95	324	25	61	66.0	5.3
D127# #WR	45	4298											73	67.0	5.3

 $<sup>^{\</sup>star}\ Normal\ maximum\ speeds\ with\ 1^{\circ}\ max.\ angular\ malalignment,\ above\ these\ speeds\ consult\ our\ Sales\ Technical\ Staff.$ 

### Discflex



### **Component Spares**

Coupling number	Product no 'BB' type	Product no 'FF' type	Polyurethane disc	Rubber/fabric disc	Pin assembly	Half body pilot bored	Half body taped bored
D41 ## NP	644763	644763/77	644733	-	644204	644205	644205/77
D41 ## NR	647263	647263/77	-	647233	644204	644205	644205/77
D52 ## NP	644766	644766/77	644736	-	644207	644208	644208/77
D52 ## NR	647266	647266/77	-	647236	644207	644208	644208/77
D52 ## SP	644767	644767/77	644737	-	644207	644208	644208/77
D52 ## SR	647267	647267/77	-	647237	644207	644208	644208/77
D52 ## WP	644768	644768/77	644738	-	644207	644208	644208/77
D52 ## WR	647268	647268/77	-	647238	644207	644208	644208/77
D71 ## NP	644769	644769/77	644739	-	644210	644211	644211/77
D71 ## NR	647269	647269/77	-	647239	644210	644211	644211/77
D71 ## SP	644770	644770/77	644740	-	644210	644211	644211/77
D71 ## SR	647270	647270/77	-	647240	644210	644211	644211/77
D71 ## WP	644771	644771/77	644741	-	644210	644211	644211/77
D71 ## WR	647271	647271/77	-	647241	644210	644211	644211/77
D89 ## NP	644772	644772/77	644742	-	644213	644214	644214/77
D89 ## NR	647272	647272/77	-	647242	644213	644214	644214/77
D89 ## SP	644773	644773/77	644743	-	644213	644214	644214/77
D89 ## SR	647273	647273/77	-	647243	644213	644214	644214/77
D89 ## WP	644774	644774/77	644744	-	644213	644214	644214/77
D89 ## WR	647274	647274/77	-	647244	644213	644214	644214/77
D108 ## NR	647275	647275/77	-	647245	644216	644217	644217/77
D108 ## SR	647276	647276/77	-	647246	644216	644217	644217/77
D108 ##WR	647277	647277/77	-	647247	644216	644217	644217/77
D127 ## NR	647278	647278/77	-	647248	644219	644220	644220/77
D127 ## SR	647279	647279/77	-	647249	644219	644220	644220/77
D127 ##WR	647280	647280/77	-	647250	644219	644220	644220/77

# The best range of solution chain products available anywhere



# **Synergy**

- High performance
- · Superior wear life
- Outstanding fatigue resistance



# Syno<sup>\*</sup>

- Maintenance free
- Self-lubricating chain
- Food industry-approved lubricant



### RENOLD

- · Best premium chain
- Leading performance
- Solid bush / solid roller / end softened pin



# Hydro-Service<sup>™</sup>

- Superior corrosion resistant coating
- Alternative choice to stainless steel chain
- Will not chip or peel
- Hexavalent chrome-free



### Steel Pin Bush Roller Chain

- Manufactured to international stds
- Full range of pitch alternatives
- Breaking loads 13 to 900 kN as std
- Attachments to suit varied applications



### **Leaf Chain**

- Comprehensive ranges used worldwide for safety critical lifting applications
- 100 years experience in developing and maintaining lifting chain



### **Steel Knuckle Chain**

- Heavy duty, detachable elevator chains
- Integral K type attachments
- Breaking loads from 642kN to 1724kN
- Sealed joint to extend chain life



# Roll-Ring<sup>™</sup>

- Revolutionary chain tensioner
- Installed in seconds and self adjusting
- Maintenance free
- Also acts as noise damper



### Customised Engineering Chain

- Wide range to suit specialised applications using high specification materials and treatment processes
- Designed in close collaboration with customer



## Smartlink™

- Load monitoring technology
- Technical reports & data logging



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