

BEARINGS

**BISF
BTEU**

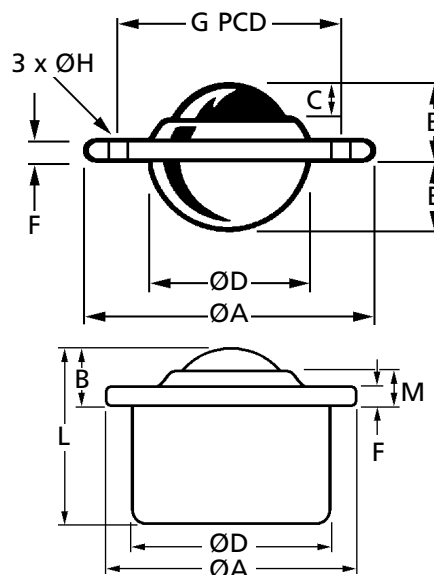
Transfer Ball Units

10 - 340kg Load Capacity



BISF Type Flange Fixing Unit

BTEU Type Euro Units



Discounts: 6+ -5% 20+ -10% 40+ -15% 60+ -20% 100+ -25% 200+ -30%

Part Number	Fixing Holes	Ball Size (mm)	Weight (g)	ØA max.	B	C	ØD	E	F	G PCD ±0.2	ØH	L	M	Seating Hole Ø0	Max. Loading (kg)		Price Each 1 - 5
															Load	Load	
FLANGE FIXING UNIT - STEEL																	
BISF-19C	3	19	87	61.0	10.0	3.2	29.1±0.2	12.0	3.2	44.5	5.1	-	-	29.5	25	10	£3.65
BISF-25C	3	25	175	73.0	14.2	6.3	37.2±0.2	15.8	3.5	55.6	5.1	-	-	38.1	55	25	£4.14
BISF-32C	3	32	265	73.7	16.2	8.0	45.5±0.2	19.9	4.2	58.7	5.1	-	-	46.0	125	55	£6.97
BISF-40C	3	40	515	89.0	21.4	8.7	55.6±0.2	24.6	6.0	70.0	7.0	-	-	56.0	140	60	£17.94
BISF-50C	3	50	1065	120.7	28.3	14.3	75.3±0.2	30.2	6.3	92.0	8.0	-	-	76.0	340	100	£40.66
FLANGE FIXING UNIT - STAINLESS STEEL																	
BISF-19SS	3	19	87	61.0	10.0	3.2	29.1±0.2	12.0	3.2	44.5	5.1	-	-	29.5	25	10	£14.53
BISF-25SS	3	25	175	73.0	14.2	6.3	37.2±0.2	15.8	3.5	55.6	5.1	-	-	38.1	55	25	£13.17
BISF-32SS	3	32	265	73.7	16.2	8.0	45.5±0.2	19.9	4.2	58.7	5.1	-	-	46.0	125	55	£19.72
BISF-40SS	3	40	515	89.0	21.4	8.7	55.6±0.2	24.6	6.0	70.0	7.0	-	-	56.0	140	60	£43.38
BISF-50SS	3	50	1065	120.7	28.3	14.3	75.3±0.2	30.2	6.3	92.0	8.0	-	-	76.0	250	100	£112.48
EURO UNIT - STEEL																	
BTEU-15C	-	15	43	31	9.5±0.2	-	24±0.065	-	2.8	-	-	21.0	6.3	-	60	60	£5.01
BTEU-22C	-	22	132	45	9.8±0.2	-	36±0.08	-	2.8	-	-	30.0	5.5	-	160	160	£7.21
BTEU-30C	-	30	278	55	13.8±0.3	-	45±0.08	-	4.0	-	-	37.0	8.3	-	300	300	£13.12
BTEU-45C	-	45	725	75	19.0±0.4	-	62±0.095	-	4.0	-	-	53.5	10.0	-	610	610	£35.05
EURO UNIT - STAINLESS STEEL																	
BTEU-15SS	-	15	43	31	9.5±0.2	-	24±0.065	-	2.8	-	-	21.0	6.3	-	38	38	£13.12
BTEU-22SS	-	22	132	45	9.8±0.2	-	36±0.08	-	2.8	-	-	30.0	5.5	-	100	100	£16.22
BTEU-30SS	-	30	278	55	13.8±0.3	-	45±0.08	-	4.0	-	-	37.0	8.3	-	200	200	£32.46

Part Number	Hole Size for Units (when used with clips)	Price Each 1 - 5
INSERT CLIPS		
BTEU-15-CLIP	24mm (+1/1.5)	£1.03
BTEU-22-CLIP	36mm (+1/1.5)	£0.93
BTEU-30-CLIP	45mm (+1/1.5)	£1.03
BTEU-45-CLIP	62mm (+1/1.5)	£1.32

Insert Clips (for BTEU & BTHD Types)

Features: press in to ball unit, prise out ball unit to remove. **Note:** when fitting ball unit with fixing clips, do not strike the load ball to press the unit into position. Instead, apply an even force onto the body of the unit using a tube or similar tool.



- Insertion locks unit
- Push in-prise out



Material

BISF-C & BTEU-C:

Case: Zinc plated Mild Steel. **Ball:** Carbon Steel 60-66 HRC.

BISF-SS & BTEU-SS:

Case: Stainless Steel 304. **Ball:** Stainless Steel 420C 55-58 HRC.



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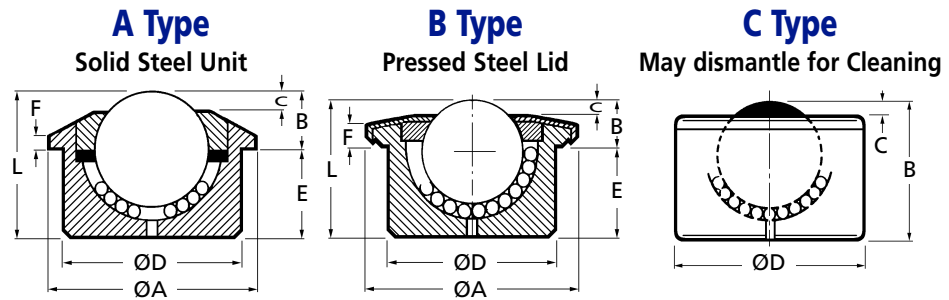
Product information updated 1st April 2011 and subject to change. Please contact Sales for the latest prices and availability.

BTHD

BEARINGS

Heavy Duty Transfer Ball Units

56 - 3500kg Load Capacity



Discounts: 6+ -5% 20+ -10% 40+ -15% 60+ -20% 100+ -25% 200+ -30%

Part Number	Ball Size (mm)	Weight (kg)	ØA max.	B	C	ØD	E	F	L	Max. Load (kg) Load	Price Each 1 - 5
TYPE A											
BTHD-22A	22	0.18	45	9.8±0.2	3.8	36±0.08	20.7	3.0	30.5	180	£16.44
BTHD-22APSS	22	0.18	45	9.8±0.2	3.8	36±0.08	20.7	3.0	30.5	180	£19.39
BTHD-22ASS	22	0.18	45	9.8±0.2	3.8	36±0.08	20.7	3.0	30.5	120	£38.17
BTHD-30A	30	0.38	55	13.8±0.2	5.5	45±0.08	23.0	3.4	36.8	350	£22.91
BTHD-30APSS	30	0.38	55	13.8±0.2	5.5	45±0.08	23.0	3.4	36.8	350	£26.44
BTHD-30ASS	30	0.38	55	13.8±0.2	5.5	45±0.08	23.0	3.4	36.8	200	£51.60
BTHD-45A	45	1.10	75	19.0	9.0	62±0.1	34.5	3.8	53.5	600	£53.46
BTHD-45APSS	45	1.10	75	19.0	9.0	62±0.1	34.5	3.8	53.5	600	£67.00
BTHD-45ASS	45	1.10	75	19.0	9.0	62±0.1	34.5	3.8	53.5	300	£137.40
BTHD-60A	60	3.80	117	29.5	16.5	100±0.1	48.0	5.0	77.5	1500	£173.36
BTHD-60APSS	60	3.80	117	29.5	16.5	100±0.1	48.0	5.0	77.5	1000	£210.76
BTHD-60ASS	60	3.80	117	29.5	16.5	100±0.1	48.0	5.0	77.5	1000	£492.46
TYPE B											
BTHD-15B	15	0.06	31	9.5±0.2	4.0	24±0.06	11.5	3.8	21.0	56	£9.00
BTHD-15BPSS	15	0.06	31	9.5±0.2	4.0	24±0.06	11.5	3.8	21.0	56	£11.64
BTHD-15BSS	15	0.06	31	9.5±0.2	4.0	24±0.06	11.5	3.8	21.0	43	£18.12
BTHD-22B	22	0.20	45	9.8±0.2	3.5	36±0.08	20.7	4.0	30.5	180	£13.29
BTHD-22BPSS	22	0.20	45	9.8±0.2	3.5	36±0.08	20.7	4.0	30.5	180	£13.42
BTHD-22BSS	22	0.20	45	9.8±0.2	3.5	36±0.08	20.7	4.0	30.5	120	£30.54
BTHD-30B	30	0.37	55	13.8±0.2	5.5	45±0.08	23.0	5.0	36.8	350	£19.58
BTHD-30BPSS	30	0.37	55	13.8±0.2	5.5	45±0.08	23.0	5.0	36.8	350	£22.16
BTHD-30BSS	30	0.37	55	13.8±0.2	5.5	45±0.08	23.0	5.0	36.8	200	£39.20
BTHD-45B	45	0.99	75	19.0	9.0	62±0.1	34.5	4.5	53.5	600	£42.98
BTHD-45BPSS	45	0.99	75	19.0	9.0	62±0.1	34.5	4.5	53.5	600	£59.14
BTHD-45BSS	45	0.99	75	19.0	9.0	62±0.1	34.5	4.5	53.5	300	£105.07
TYPE C											
BTHD-60C	60	3.50	-	77.5	16.5	100±0.1	-	-	-	1500	£196.56
BTHD-60CPSS	60	3.50	-	77.5	16.5	100±0.1	-	-	-	1000	£215.86
BTHD-76C	76	8.60	-	103.0	23.0	130±0.1	-	-	-	3000	£513.92
BTHD-76CPSS	76	8.60	-	103.0	23.0	130±0.1	-	-	-	2500	£532.66
BTHD-90C	90	11.00	-	115.0	25.0	145±0.1	-	-	-	4000	£557.44
BTHD-90CPSS	90	11.00	-	115.0	25.0	145±0.1	-	-	-	3500	£602.66

Material

BTHD: Body: Zinc plated mild steel none leaded bar machined and case hardened. **Ball:** Chrome steel Spec. 60-66 HRC. **BTHD-PSS: Body:** Zinc plated mild steel none leaded bar machined and case hardened. **Ball:** Stainless steel AISI 420 or 440. **BTHD-SS: Body:** Self colour, bright machined stainless steel Spec. AISI 303 non-hardened. **Ball:** Stainless steel AISI 420 or 440.

Extras

Insert Clips: Can use BTEU clips for the above.

Other Info.

Solid body steel units are for all long life heavy and impact load applications. They incorporate a seal and self-cleaning hole for maximum efficiency and smooth running. All units are machined with solid steel bodies and the working surfaces are hardened (unless stated). **Special designs can be readily manufactured to customers' specification.**

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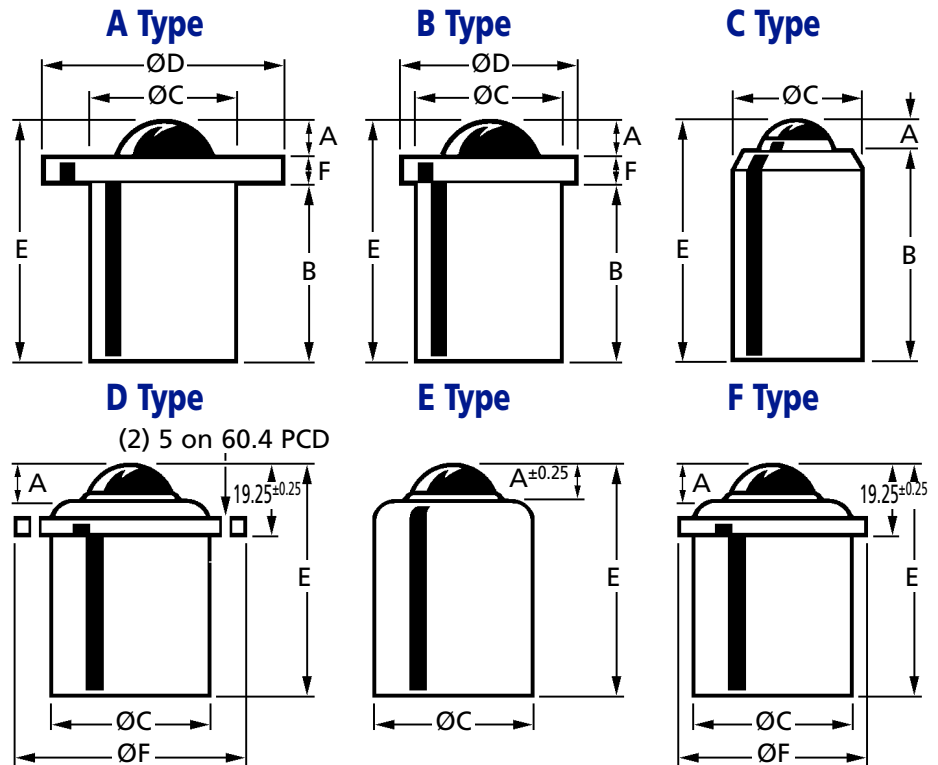
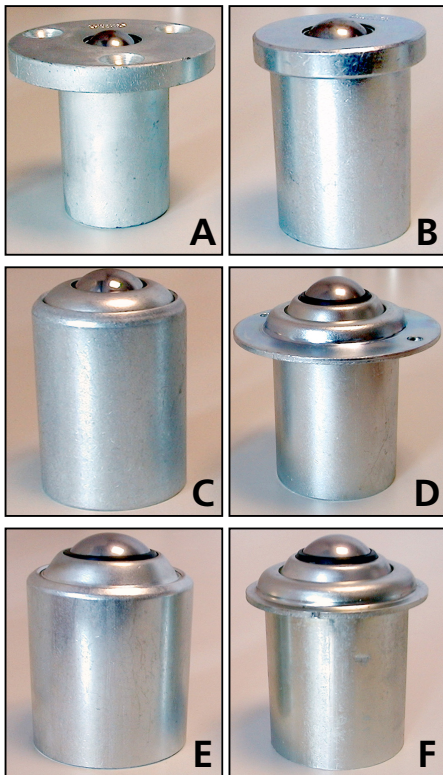
Product information updated 1st April 2011 and subject to change. Please contact Sales for the latest prices and availability.

BEARINGS

Spring Loaded Ball Units

10 - 408kg Load Capacity

BTSU



Discounts: 6+ -5% 20+ -10% 40+ -15% 60+ -20% 100+ -25% 200+ -30%

Part Number	Supp. Load kg	Load to fully dep. kg	Ball Height A	Body Height B	Body Dia. ØC	Flange Dia. ØD	Overall Height E	Flange Thickness F	Fixing Holes			Weight kg	Price Each 1 - 5
									Size	No.	PCD		
BTSU-19A	10	30.0	3.50	51.60	36.50	66.67	63.00	7.90	6.74	3	50.80	0.42	£55.53
BTSU-19B	10	30.0	3.50	51.60	36.50	44.50	63.00	7.90	-	-	-	0.30	£47.08
BTSU-19C	10	35.0	9.47	55.63	36.50	-	65.10	-	-	-	-	0.26	£36.06
BTSU-25A	35	100.0	5.90	53.30	44.50	76.20	67.10	7.90	6.74	3	60.32	0.52	£60.96
BTSU-25B	35	100.0	5.90	53.30	44.50	50.80	67.10	7.90	-	-	-	0.44	£59.04
BTSU-25C	35	140.0	11.91	58.73	44.50	-	70.64	-	-	-	-	0.38	£33.68
BTSU-25D	50	130.0	9.30	-	44.50	71.30	72.25	-	-	-	-	0.40	£37.81
BTSU-25E	50	130.0	11.10	-	44.50	-	72.25	-	-	-	-	0.38	£32.44
BTSU-25F	50	130.0	9.30	-	44.50	56.00	72.25	-	-	-	-	0.39	£37.81
BTSU-32A	100	180.0	7.50	77.55	60.00	89.00	94.62	9.50	6.74	3	73.00	1.14	£103.66
BTSU-32B	100	180.0	7.50	77.55	60.00	76.20	94.62	9.50	-	-	-	1.04	£99.73
BTSU-32C	100	200.0	10.37	84.96	60.00	-	95.33	-	-	-	-	0.86	£65.59
BTSU-40A	100	170.0	8.20	90.00	69.85	101.60	107.70	9.50	8.33	3	85.70	1.82	£136.27
BTSU-40B	100	170.0	8.20	90.00	69.85	76.20	107.70	9.50	-	-	-	1.54	£126.16
BTSU-40C	100	190.0	12.77	94.80	69.85	-	107.57	-	-	-	-	1.46	£89.11
BTSU-50A	170	408.5	13.00	114.00	101.60	152.40	139.20	12.75	8.33	3	127.00	5.04	£315.29
BTSU-50B	170	408.5	13.00	114.00	101.60	114.30	139.70	12.75	-	-	-	4.18	£295.39
BTSU-50C	170	408.5	13.00	126.70	101.60	-	139.70	-	-	-	-	-	£289.05

Material

Case: Zinc plated Mild Steel. Ball: Carbon Steel 60-66 HRC.

Other Info.

Applications:

- Guillotines • Presses • Moulding machines • Base of machines for easy handling • Press brakes • Shock loading.

There are many ways in which spring loaded ball units can serve industry. A press, for example, may have spring loaded ball units set in the plate to facilitate the on and Off-loading to the workpiece. When the press operates the springs compress and the ball units sink below the surface - leaving the workpiece on a firm base. When pressure is released, the ball units rise to enable the workpiece to be easily removed.

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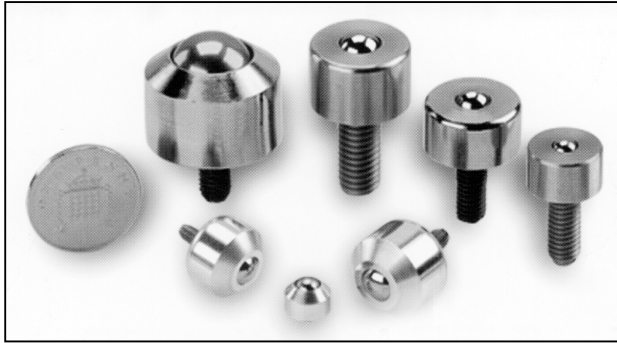
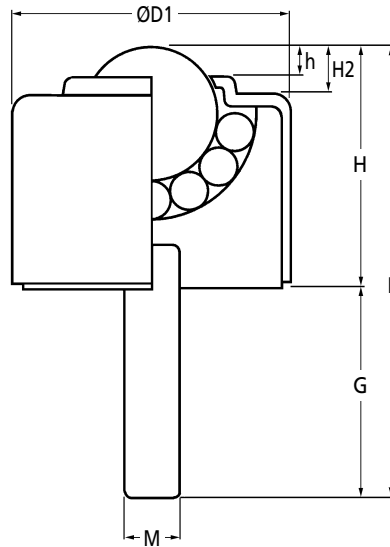
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BTIS

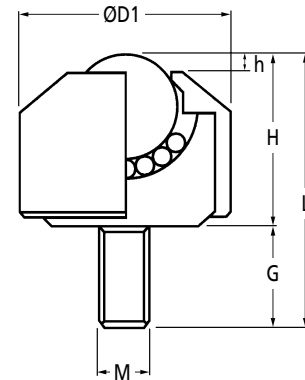
BEARINGS

Miniature Ball Transfer Units

50 - 70kg Load Capacity

**BTIS-xxSN Type** (Stainless housing & balls)**BTIS-xxN Type** (Steel housing & balls)**BTIS-xxSNM Type**

(Aluminium housing, stainless balls)

**Discounts:** 6+ -5% 20+ -8% 40+ -10% 60+ -12% 100+ -15% 200+ -30%

Part Number	Ball Size (mm)	Housing Material	H2	h	ØD1	G	L	H	M	Weight kg	Load Rating kg	Price Each 1 - 5
BTIS-05SNM	4.8	Alumin.	-	1.0	8.0	2.5	8.5	6.0	M2	0.003	5	£23.75
BTIS-05N	4.8	Steel	-	1.0	13.0	15.0	24.0	9.0	M6	0.010	10	£30.88
BTIS-05SN	4.8	Stainless	-	1.0	13.0	15.0	24.0	9.0	M6	0.010	10	£31.36
BTIS-06SNM	6.4	Alumin.	-	1.0	13.0	6.0	16.5	10.5	M3	0.011	10	£24.76
BTIS-06N	6.4	Steel	-	2.0	17.0	15.0	26.0	11.0	M6	0.020	20	£18.95
BTIS-06SN	6.4	Stainless	-	2.0	17.0	15.0	26.0	11.0	M6	0.020	20	£31.96
BTIS-08SNM	7.9	Alumin.	-	1.0	15.0	8.0	20.5	12.5	M4	0.021	15	£26.30
BTIS-08N	7.9	Steel	-	2.0	18.0	18.0	32.0	14.0	M8	0.030	30	£19.88
BTIS-08SN	7.9	Stainless	-	2.0	18.0	18.0	32.0	14.0	M8	0.030	30	£68.90
BTIS-10N	9.6	Steel	2.5	2.0	23.0	20.0	40.0	20.0	M8	0.060	40	£20.55
BTIS-10SN	9.6	Stainless	2.5	2.0	23.0	20.0	40.0	20.0	M8	0.060	40	£38.61
BTIS-13N	12.7	Steel	4.0	3.5	28.0	23.0	48.0	25.0	M8	0.100	50	£21.73
BTIS-13SN	12.7	Stainless	4.0	3.5	28.0	23.0	48.0	25.0	M8	0.100	50	£54.35
BTIS-16N	15.0	Steel	-	4.0	24.0	12.0	32.5	20.5	M6	0.050	70	£24.59
BTIS-16SN	15.0	Stainless	-	4.0	24.0	12.0	32.5	20.5	M6	0.050	70	£66.43

Material

BTIS-xxN: Steel housing and balls.

BTIS-xxSN: Stainless Steel housing and balls.

BTIS-xxSNM: Aluminium housing and Stainless Steel balls.

Applications

- Measuring Equipment
- Lightweight coilhandler
- Guides for small linear motion (eg photo copier slides)
- Transfer of material in clean rooms

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BEARINGS

Ball Units

The following applies to all Ball Units unless mentioned in the appropriate section

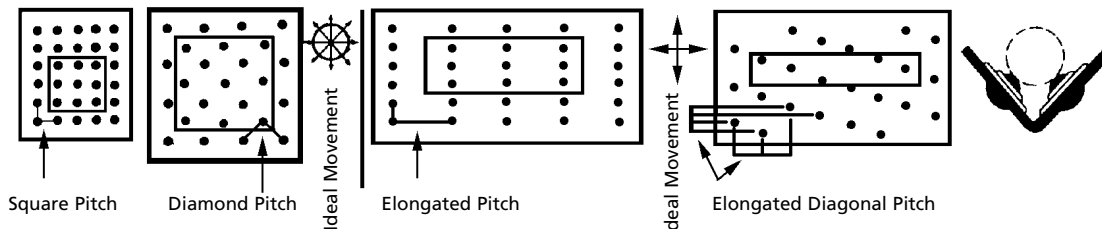
Ondrives Ball Units consist of a large ball seated on a quantity of small bearings in a hemispherical cup. NOT JUST A SINGLE RING OF BALLS. There are from 80 to 150 bearings according to ball unit size. This design enables the large ball to rotate freely and instantaneously in ANY direction. Extremely heavy load can be moved with the minimum of effort.

It should be noted that the load is supported through the centre line of the unit. It may also be applied offset, upwards, downwards or sideways, although this may affect stated loading. Tubes and bars of varying diameters can also be conveyed.

TO DETERMINE BALL UNIT CAPACITY the weight of the article to be conveyed should be divided by 3. The result gives the maximum load which any single ball unit may have to bear. If the Ball Units are levelled accurately, then a larger number than 3 may be applied. The surface hardness and condition of the article to be conveyed should be taken into consideration to avoid undue ball penetration.

SPACING OF BALL UNITS. The pitch is obtained by dividing the narrowest dimension by 3.5 i.e. narrowest dimension 14" divided by 3.5 = pitch of 4" between ball centres, this ensures 3 units are beneath the narrowest dimension at any one time.

SOME BALL UNIT ARRANGEMENTS



LUBRICATION Each Ball Unit is PRE-LUBRICATED during manufacture and normally does not require further attention. In certain applications we will advise on lubrication. Greasing or oiling points can be incorporated in some units.

CLEANING A suitable cleaning or release fluid should be used if dirty conditions prevail. Paraffin or suitable detergent for washing through and WD40 for freeing.

SHOCK LOADS When calculating loads bear in mind the possibility of impact from dropping, incorrect levels etc. **SPRING LOADING** will considerably reduce wear and tear to the Ball Units where they are subject to continuous harsh shock treatment. The shock will be absorbed by the springs but the article will move easily on the spring supported units. Shock loading can be reduced by fitting pads under each unit.

RETRACTABLE BALL UNITS Ball Units can be made retractable by means other than spring loading. Pneumatic or hydraulic cylinders and cams or levers can be fitted below units to enable them to be lifted. They can be programmed to operate in sequence with the movement of a machine.

SELF LEVELLING can be effected by fitting rubber pads under each unit. This allows any unit standing proud to be compressed to the mean level eliminating the possibility of excessive loading on a few units. Details on request.

SELF LOCKING. Spring loaded Ball Units permit an empty container to move freely into position, then stand firmly when additional load is applied (with Ball Units retracted).

SELF CLEANING. Most designs of our Ball Units have holes in the base of the bearing cup.

SEAL. A seal is incorporated to help resist ingress of dirt and swarf etc. Either Polyurethane foam or felt. Although it can be left out by request.

TEMPERATURE. (Minimum -30°C to maximum 70°C continuous or 100°C intermittent), do not affect the running qualities but special seals may have to be fitted to suit prevailing conditions. In clean conditions without seal 150°C-200°C is possible.

FINISHES. Standard Bright Zinc, Heviloal Black, other finishes available.

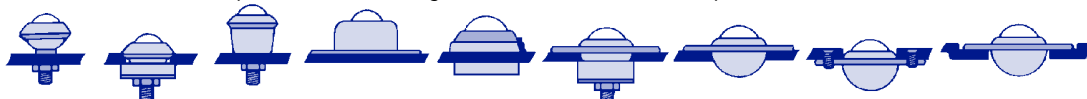
LARGE BEARINGS of Nylon, Phenolic, Bronze, Polypropylene, Hollow Steel etc. can be supplied.

FIXING. Refer to specific unit for method. Overtightening may cause damage.

BALL CASTORS. Many Castor applications can be solved with Ball Transfers.

15 Nm MAX TORQUE
ALL NUTS

Illustrated below are various methods of fixing the standard range of Ondrives Ball Units. A wide range of fittings enable them to be used with metals, wood, plastics and slotted angle, etc. Consult our technical department for further details.



TECHNICAL