

**ALWAYSE**

Ball transfer units



Formed in 1972, BIL Group started from humble beginnings. Originally known as Baz-Roll International, the company began life as a castor and wheel distributor quickly expanding and relocating from its original premises in the South East of the UK across to the South West and our current location in Calne, Wiltshire.

The company itself is comprised of three divisions:

**BIL CASTORS AND WHEELS**

The UK's leading manufacturer of such products, with thousands of combinations and options available. With over £2.3m stock holding we have a solution for nearly any requirement. If it's not a stock item then we have the capabilities to produce project work and make your solution bespoke.

**BIL MATERIALS HANDLING**

Featuring our renowned premium AluTruk® modular sack truck range and our Skoots® Moving System along with a whole range of trolleys, dollies, moving skates and more. As with our castor division, extensive stocks are held for fast reliable delivery!

**BIL EQUIPMENT**

The third piece of the jigsaw. Our BIL Equipment division have full welding and fabrication capabilities, which in turn produce some of our many product lines. Adding to our innovative and flexible approach we are able to machine produce additional parts such as axles, spacer plates, assemblies and much, much more. The possibilities are endless.



BIL Group are a leading distributor of Alwaysse ball transfer units and associated products.

Alwaysse Engineering was established in 1939 and are known throughout the world as the originators of the ball transfer unit with over 2 million sold every year.

Alwaysse ball transfer units are used as part of a conveyor or materials handling system to enable loads, both light and heavy, to be moved or transferred effortlessly in any direction. Whether ball units are used for loading and feeding machines, moving goods and materials, as an alternative to a castor or in a form of linear operation, they have become an integral part of industry the world over.

Contents

BIL Group and Alwaysse Engineering

1

Technical information

2

Mini series

Thread fixing

3

General Purpose series

Square plate fixing

4

Elliptical plate fixing

4

Circular flange fixing

5

Thread fixing

5

Hevi-Load series

Barrel fitting

6

Thread fixing

6

Barrel fitting with square flange

7

Square plate fixing

7

Hevi-Load Die Lifter series

Interference fit

8

Heavy Duty series

Barrel fitting with circular flange

9

Spring Loaded series

Barrel fitting with circular flange

10

Glide series

Barrel fitting

10

Euro series

Barrel fitting / with spring clip

11

Tuff series

Thread fixing

12

Braked series

Circular plate fixing

13

Float-On series

Thread and nut fixing

13

Example applications

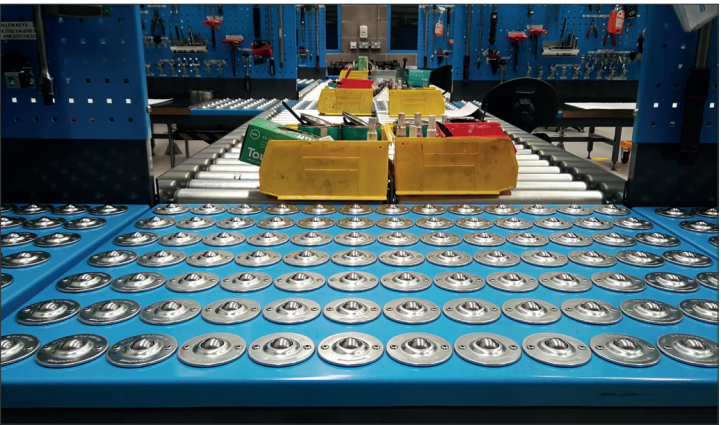
14,15

The BIL Group product range

16

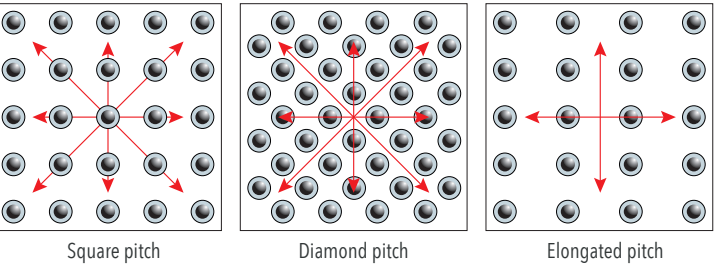
- Diameter range of units listed in table
- Load range of units listed in table
- CAD file available
- Manual handling speed relevant to stated load capacity
- Operating temperature range relevant to stated load capacity

Alwayse ball units are a multi-directional materials handling system, manufactured in the UK from high quality materials. They consist of a large load-bearing ball which sits upon many small balls encapsulated in a housing which can contain a seal to clean the ball as it rotates. The design greatly reduces friction and allows heavy loads to be moved with a minimum of effort.

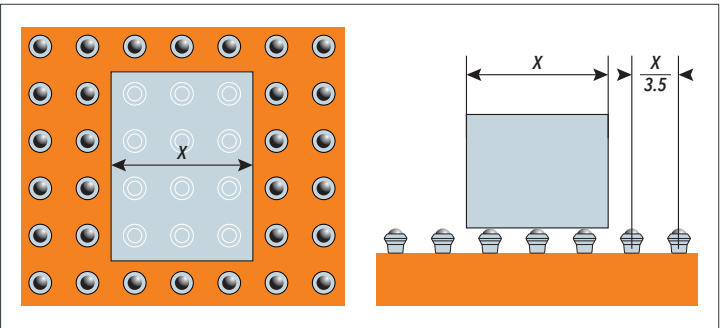


RECOMMENDATIONS ON TABLE CONFIGURATIONS

Table layout options. Red arrows denote ideal direction of movement.



Pitch should be determined by ensuring the narrowest part of the load is supported by a minimum 3 units. This is achieved by dividing this dimension "X" by 3.5, for example, 350mm divided by 3.5 = 100mm pitch.





INDUSTRIES & APPLICATIONS


- Cargo and baggage handling.
- Assembly lines.
- Machine loading.
- Sliding door systems.
- Machine tables.
- Distribution centres.
- Sheet goods transfer.
- Packaging.


In addition to the units listed, many more configurations of materials, seals and fixings are available. Please ask for details.


- Mini series
- Thread fixing

4.8 - 15.8

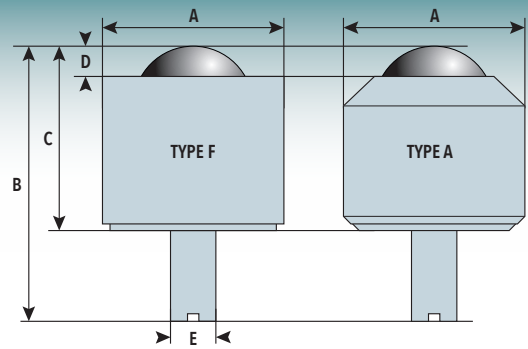
5 - 70

-30°C +70°C

CAD

Upon request

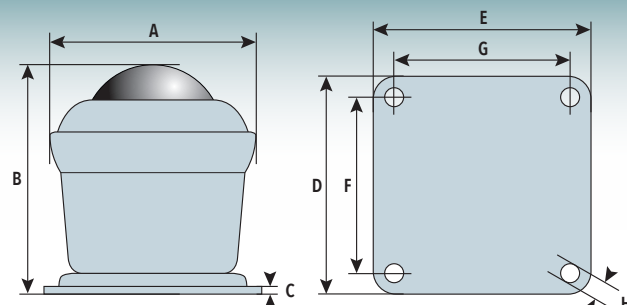
MINI | Thread fixing



ball dia.	type	A	B	C	D	E	carbon steel bearings		completely stainless		stainless balls aluminium casing stainless thread	
							code	ball up load	code	ball up load	code	ball up load
4.8	F	13	24	9	1	M6	11MI0513	10	11MI0515	10		
	A	8	8.5	6	1	M2					11MI0517	5
6.4	F	17	26	11	2	M6	11MI0613	20	11MI0615	20		
	A	13	16.5	10.5	2	M3					11MI0617	15
7.9	F	18	32	14	2	M8	11MI0813	30	11MI0815	30		
	A	15	20.5	12.5	2	M4					11MI0817	20
9.6	F	23	40	20	2	M8	11MI1013	40	11MI1015	40	-	
12.7	F	28	48	25	3.5	M8	11MI1313	50	11MI1315	50	-	
15.8	A	24	32.5	20.5	4	M6	11MI1613	70	11MI1615	70	-	

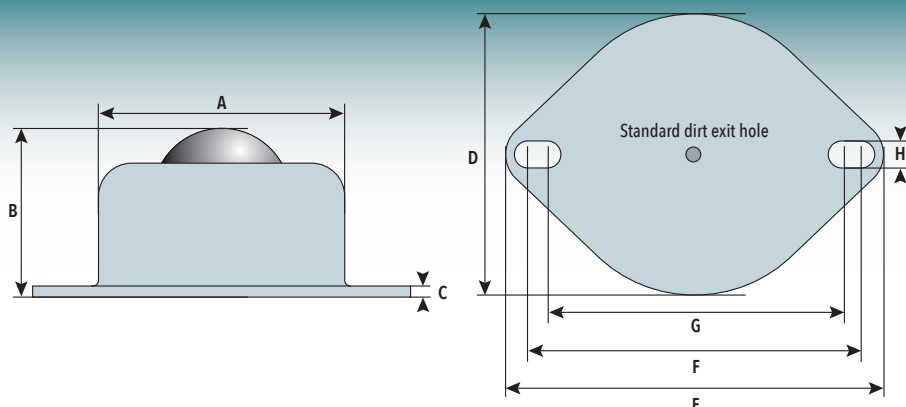


## GP | Square plate fixing



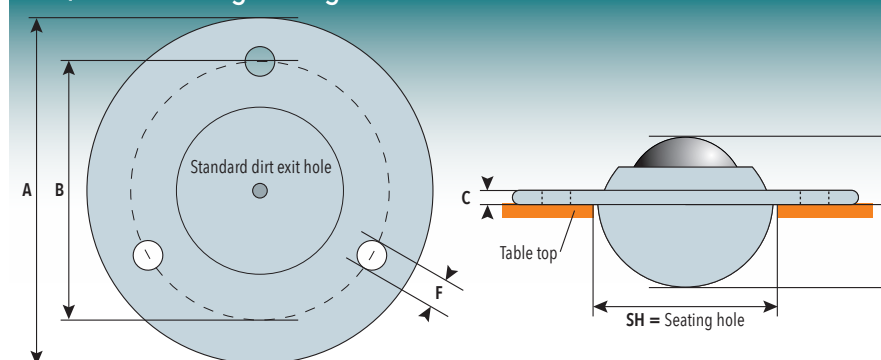
ball dia.	A	B	C	D	E	F	G	H	carbon steel bearings			nylon load bearing			completely stainless		
									code	ball up load	ball down load	code	ball up load	ball down load	code	ball up load	ball down load
39.7	56.1	57	2	58.7	58.7	47.6 ±0.2	47.6 ±0.2	4.8	200313	200	100	—			200315	200	100

## GP | Elliptical plate fixing



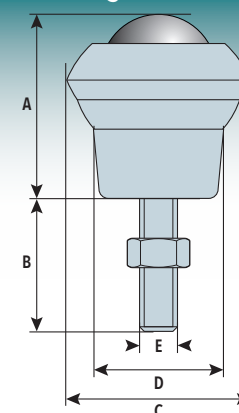
ball dia.	A	B	C	D	E	F	G	H	carbon steel bearings			nylon load bearing			completely stainless		
									code	ball up load	ball down load	code	ball up load	ball down load	code	ball up load	ball down load
25.4	44.5	30.5	1	51	69	60.3	55.9	5.5	10061300	55	25	10061400	25	10	10061500	55	25
	42.0	35.8	1.75	51	69	60.3	55.9	5.5	15031300	100	50	15031400	25	10	15031600	100	50

## GP | Circular flange fixing



ball dia.	A	B	C	D	E	F	SH	no. of fixing holes	carbon steel bearings			nylon load bearing			completely stainless		
									code	ball up load	ball down load	code	ball up load	ball down load	code	ball up load	ball down load
19.0	61	44.5±0.2	3.2	10	12.6	5.1	30	3	30061300	40	12	30061400	25	10	30061500	40	20
22.2	45	39	3.6	9.8	17.9	3.5	34	3	332213HD	25	12	33221400	20	10	33221500	180	90
25.4	56	44.5±0.2	3.8	14.6	14.6	4.5	35.5	2	30251300	75	25	30251400	30	15	30251500	75	25
	73	55.6±0.2	3.5	14.2	15.8	5.1	38.1	2	10001300	100	25	10001400	40	10	10001500	100	25
	73	55.6±0.2	3.5	14.2	15.8	5.1	38.1	3	10081300	100	25	10081400	30	10	10081500	100	25
31.7	73.7	58.7±0.2	4.2	16.2	19.9	5.1	46.5	3	10221300	150	55	10221400	40	20	10221500	150	55
39.7	89	70±0.2	6	21.4	24.6	7	56.5	3	20111300	200	100	20111400	50	30	20111500	150	75


## GP | Thread fixing





ball dia.	A	B	C	D	E	carbon steel bearings			nylon load bearing			completely stainless		
						code	ball up load	ball down load	code	ball up load	ball down load	code	ball up load	ball down load
19.0	30.2	30	32.1	26.2	M8	30021330	25	10	30021430	20	10	30021530	25	10
25.4	39.7	28	39.7	26.2	M8	10031328	70	35	10031428	25	10	10031528	70	35
	35.8	18	39.5	39.5	M8	15011318	100	50	15011418	30	10	15011518	100	50
39.7	54.8	42	56.1	49	M10	20051342	200	100	20051418	40	20	20051542	200	100





- Hevi-Load series
- Barrel / thread fixing

 12.7 - 38.1


 CAD


 25 - 1000


 1mps


 -30°C +100°C


- Hevi-Load series
- Square flange / plate fixing

 25.4 - 50.8

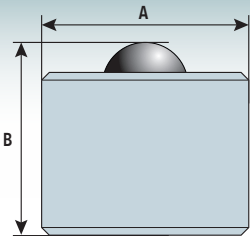
 CAD

 135 - 2000

 1mps

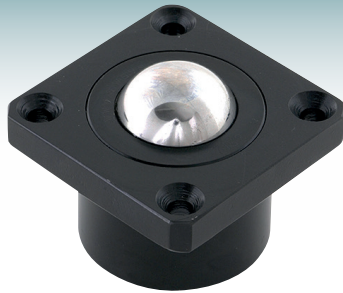
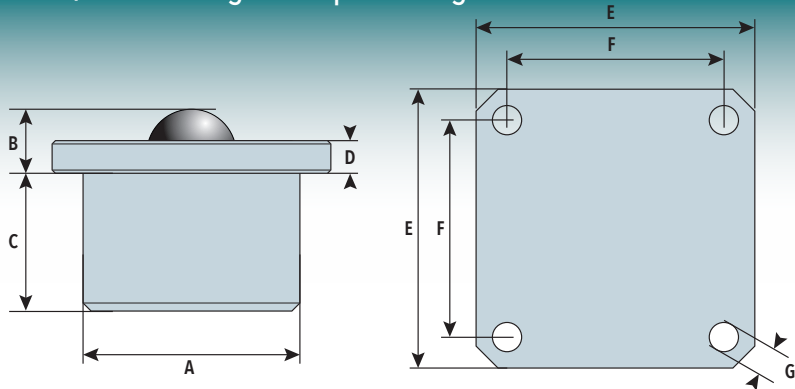
 -30°C +100°C

HEVI | Barrel fitting



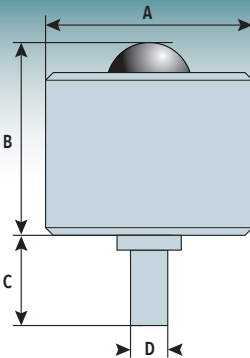
ball dia.	A	B	carbon steel bearings			stainless bearings		
			code	ball up load	ball down load	code	ball up load	ball down load
12.7	20.6	19.6	710113	50	25	710116	50	25
25.4	44.5	41.4	712013	250	125	712016	135	72

HEVI | Barrel fitting with square flange



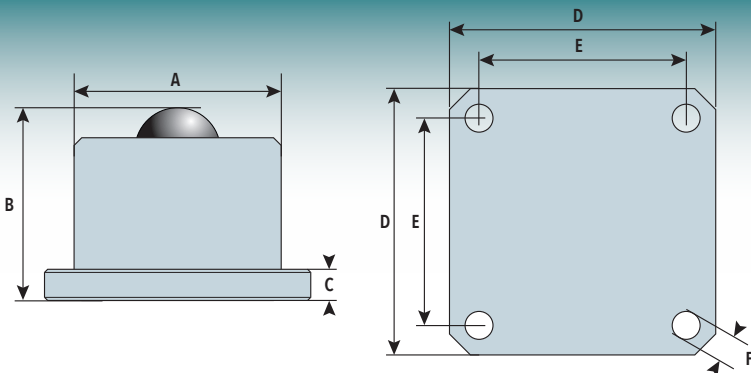
ball dia.	A	B	C	D	E	F	G	carbon steel bearings		stainless bearings	
								code	ball up load	code	ball up load
25.4	50.8	13	32	6.9	76.2	57.9±0.2	7.1	712513	320	712516	215
38.1	60	25.4	35.8	12.4	76.2	57.9±0.2	7.1	715213	1000	715216	670

HEVI | Thread fixing




ball dia.	A	B	C	D	carbon steel bearings		stainless bearings	
					code	ball up load	code	ball up load
12.7	20.6	19.6	16.2	M8	710613	50	710616	50
25.4	44.5	48.3	24.1	M12	712813	250	712816	135
38.1	60	73.5	40.8	M20	715313	1000	715316	670


HEVI | Square plate fixing





ball dia.	A	B	C	D	E	F	carbon steel bearings		stainless bearings	
							code	ball up load	code	ball up load
25.4	44.5	41.4	4.8	57.2	44.5±0.2	5.6	712213	250	712216	135
38.1	60	62.2	12.4	76.2	57.9±0.2	7.1	715113	1000	715116	670
50.8	101.6	98.3	9.6	127	101.6±0.2	11	717413	2000	717416	1330


- Hevi-Load Die Lifter series
- Interference fit
- Chemical black housing

 12.7

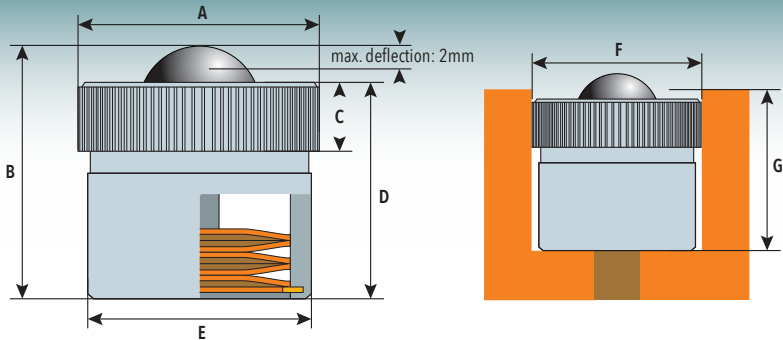
 25 - 90

 -30°C +70°C

 CAD

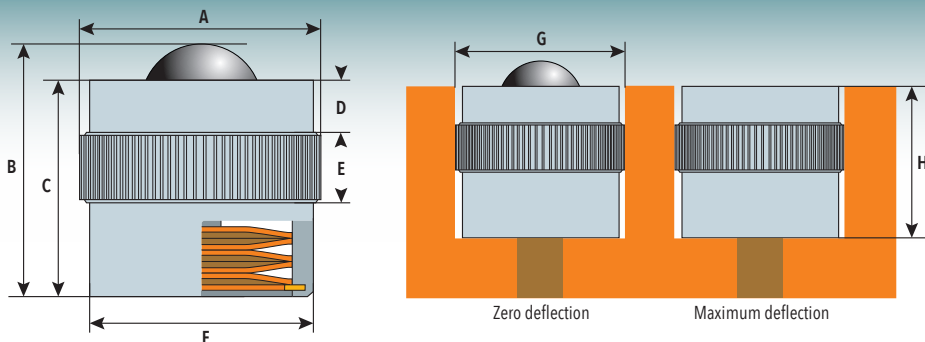
 1mps

HEVI-DL | Interference fit | Top knurl




ball dia.	A	B	C	D	E	F	G	carbon steel bearings			stainless bearings		
								code	ball up support	max. deflection	code	ball up support	max. deflection
12.7	25.6	28.5	8	25.4	25.4	25.4 +0.15 +0.05	26.5	710513	25	40	710516	25	40


HEVI-DL | Interference fit | Mid knurl





ball dia.	A	B	C	D	E	F	G	H	carbon steel bearings			stainless bearings		
									code	ball up support	max. deflection	code	ball up support	max. deflection
12.7	24..5	30	28.5	9	10.5	23.9	24.1	28.6	9DL2413	40	90	9DL2416	40	90


- Heavy duty series
- Barrel fitting with circular flange

 15.8 - 44.5

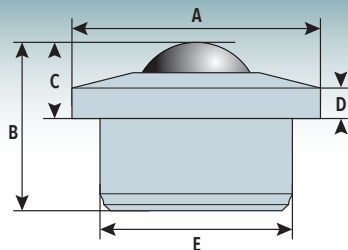
 80 - 850

 -30°C +70°C

 CAD

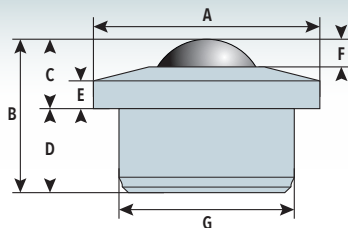
 1mps

HD | Barrel fitting with circular flange




ball dia.	A	B	C	D	E	drain holes	carbon steel bearings		completely stainless		stainless bearings zinc plated pressings	
							code	ball up load	code	ball up load	code	ball up load
15.8	31	21	9.5±0.2	3.8	24±0.06	1	8101513	80	8101515	80	8101516	80
22.2	45	30.5	9.8±0.2	3	36±0.08	1	8002213	180	8002215	120	8002216	180
30	54.5	34.8	13.8±0.2	3.4	45±0.08	4	8053013	350	8053015	250	8053016	350
44.5	75	53.5	19	3.8	62±0.1	1	8004513	850	8004515	350	8004516	850


HD | Barrel fitting with circular flange, new edition





ball dia.	A	B	C	D	E	F	G	drain holes	carbon steel bearings		stainless bearings zinc plated pressings	
									code	ball up load	code	ball up load
30	50	34.8	13.8±0.2	21	2	6.7	45±0.08	5	8883013	400	8883016	400


- Spring Loaded series
- Barrel fitting with circular flange

 19 - 22.2

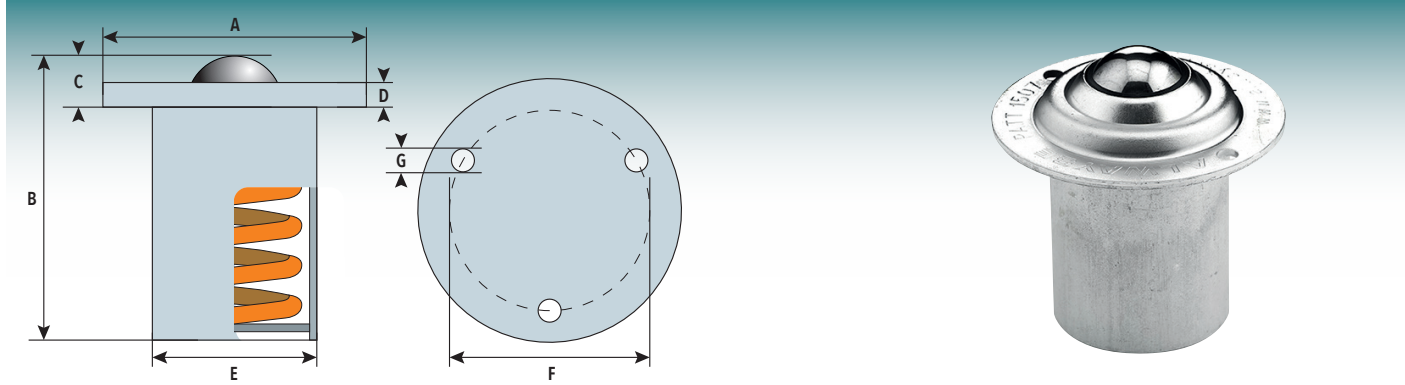
 10 - 160

 -30°C +70°C

 CAD


 1mps


SPR | Barrel fitting with circular flange





ball dia.	A	B	C	D	E	F	G	carbon steel bearings			stainless bearings		
								code	ball up load support	max. deflection	code	ball up load support	max. deflection
19	66.6 +0.0 -1.0	63	11.4	7.9	36.5	50.8±0.2	7	30111300	10	30	301116	10	30
22.2	50	51.5	18.5	14	39	undrilled	-	532013	72	160	532016	72	160


- Glide series
- Barrel fitting

 25.4

 20 - 50

 -30°C +70°C

 CAD


 0.25mps


GLIDE | Barrel fitting





ball dia.	A	B	C	D	E	carbon steel bearings		nylon load bearing		completely stainless		stainless bearings zinc plated pressings	
						code	ball up load	code	ball up load	code	ball up load	code	ball up load
25.4	30.5	33.5	24.7	7.8	26.6	170013	50	170014	20	170015	50	170016	50


- Euro series
- Barrel with circular flange / spring clip fixing

 19 - 25.4

 12 - 650

 -30°C +70°C

 CAD

 Steel: 1mps  
Nylon: 0.25mps

EURO | Barrel fitting with circular flange



ball dia.	A	B	C	D	E	carbon steel bearings		nylon load bearing		completely stainless		stainless bearings zinc plated pressings	
						code	ball up load	code	ball up load	code	ball up load	code	ball up load
15.8	31	21	9.5±0.2	2.8	24±0.20	515013 *	80	515014 *	12	515015 *	80	515016 *	80
22.2	45	30	9.8±0.2	2.8	36±0.08	522013	180	522014	30	522015	180	522016	180
30	55	37	13.8±0.3	4	45±0.20	530013	350	530014	40	530015	250	530016	350
44.5	75	53.5	19±0.4	4	62±0.20	545013	650	545014	50	545015	450	545016	650

\* Spring fixing clip available separately for ball transfer unit 5150. Order code CL415.


EURO | Barrel with circular flange and spring clip





ball dia.	A	B	C	D	E	F	SH	TT	carbon steel bearings		nylon load bearing		completely stainless		stainless bearings zinc plated pressings	
									code	ball up load	code	ball up load	code	ball up load	code	ball up load
15.8	31	21	9.5±0.2	11.5	2.8	24±0.2	25-25.5	2	515213	80	515214	12	515215	80	515216	80
22.2	45	30	9.8±0.2	20.2	2.8	36±0.2	37-37.5	3	522213	180	522214	30	522215	180	522016	180





- Tuff series
- Thread fixing
- Chemical black housing

 12.7- 39.7

 CAD

 30 - 600

 1mps


 -30°c +70°c


TUFF | Thread fixing





ball dia.	A	B	C	D	E	carbon steel bearings			completely stainless			stainless bearings zinc plated pressings		
						code	ball up load	ball down load	code	ball up load	ball down load	code	ball up load	ball down load
12.7	20	20	28	17	M6	05192313	50	25	05192315	30	15	05192316	50	25
19	30	30	25	26	M8	30192313	50	25	30192315	50	25	30192316	50	25
25.4	35	35	40	28	M8	10192313	150	75	10192315	125	62	10192316	150	75
31.7	50	45	40	37	M10	10292313	350	175	10292315	250	125	10292316	350	175
39.7	60	55	50	46	M12	20192313	600	300	20192315	300	150	20192316	600	300


- Braked series
- Circular plate fixing

 19

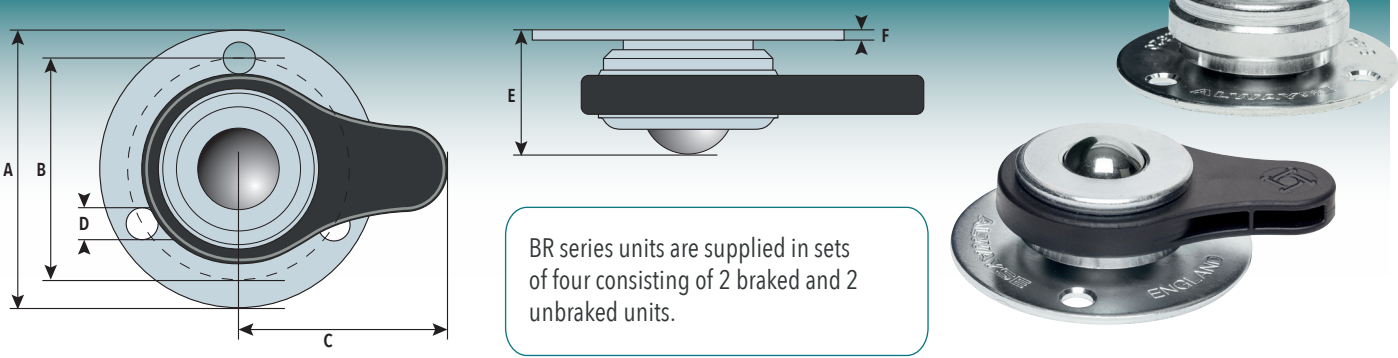
 CAD

 15 - 120

 Steel: 1mps  
Nylon: 0.25mps

 -30°c +70°c


BR | Circular plate fixing





BR series units are supplied in sets of four consisting of 2 braked and 2 unbraked units.

ball dia.	A	B	C	D	E	F	nylon load bearing			stainless bearings zinc plated pressings		
							code	ball up load	ball down load	code	ball up load	ball down load
19	63	50	48	6.5	25	2	0520SET14	20	15	0520SET16	120	80

- Float-On series
- Thread and nut fixing

 35 - 50

 CAD

 15 - 20

FLOAT-ON | Thread & nut fixing



ball dia.	A	B	C	D	80-85 shore A rubber ball			90-95 shore A polyurethane ball		
					left hand	right hand	load	left hand	right hand	load
35	55	77	38	M14	ACR35LH	ACR35RH	15	ACP35LH	ACP35RH	15
50	73	95	58	M14	ACR50LH	ACR50RH	20	ACP50LH	ACP50RH	20





Clockwise, from top left

**Civil engineering**  
Bridge dampers

**Aviation**  
Cargo handling

**Manufacturing**  
Production line

**Manufacturing**  
Glass transfer

**Automotive**  
Assembly line

**Manufacturing**  
Glass transfer

**Manufacturing**  
Production line

**Manufacturing**  
Production line

Clockwise, from top left

**Manufacturing**  
Assembly line

**Manufacturing**  
Assembly line

**Manufacturing**  
Profiling machinery

**Manufacturing**  
Production line

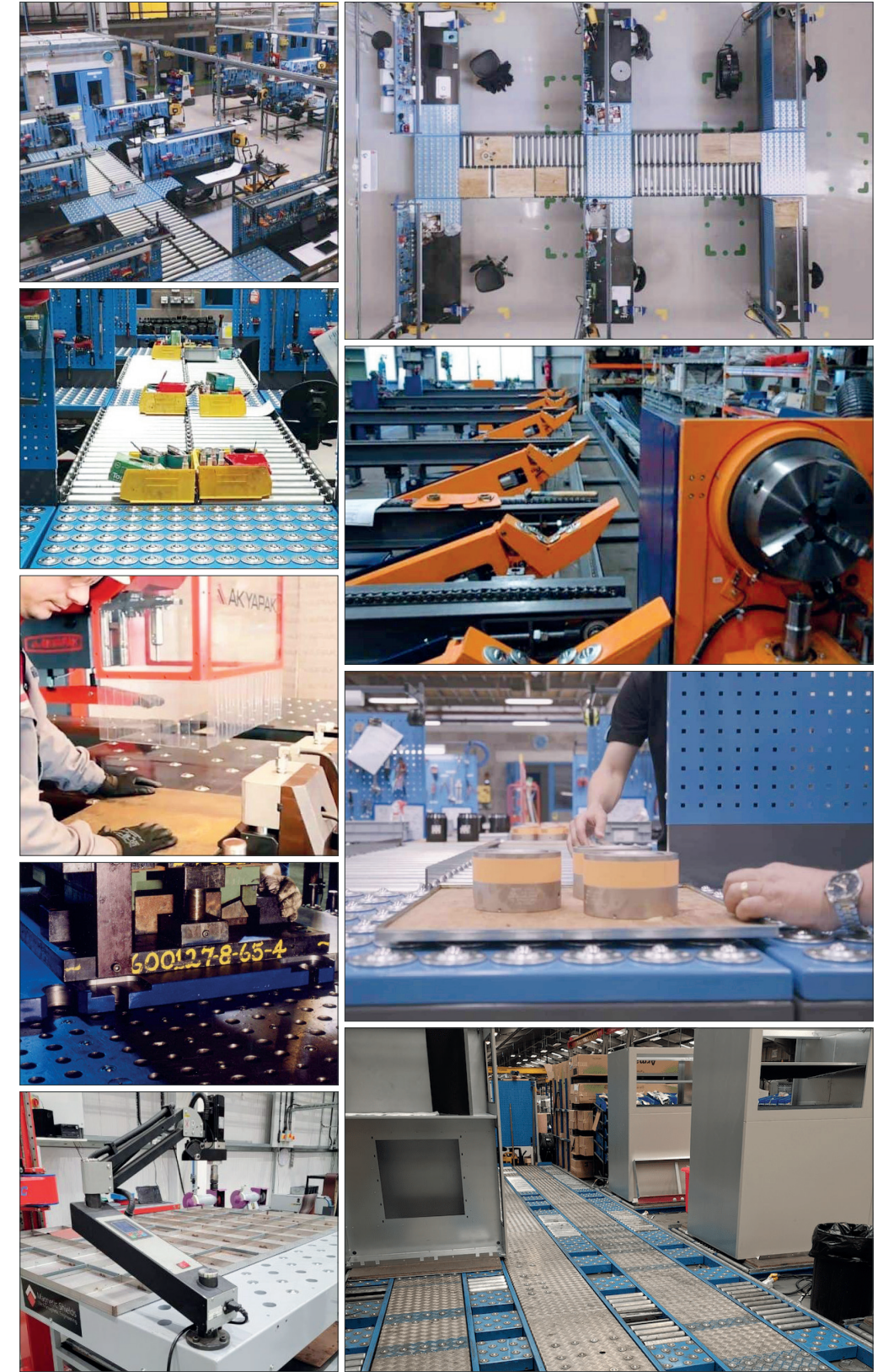
**Manufacturing**  
Assembly line

**Manufacturing**  
Sheet goods transfer

**Manufacturing**  
Die lifter

**Manufacturing**  
Sheet goods transfer

**Distribution**  
Order picking & packing





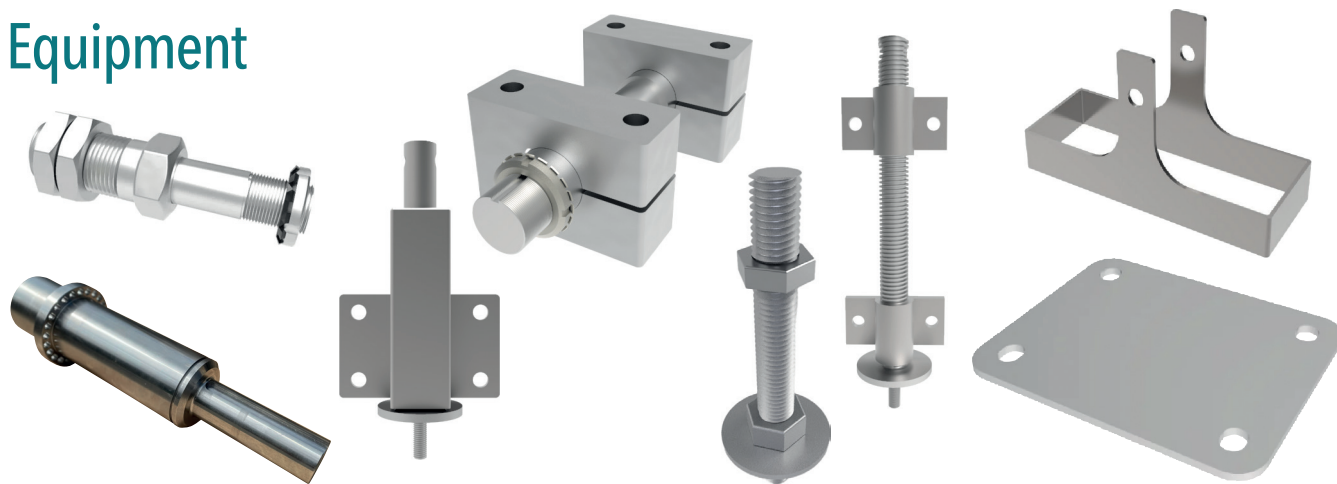
## Castors & wheels



## Materials Handling



## Equipment



Castors  
Wheels  
V Groove & Flanged Wheels  
Axles & Shafts  
Complete Wheel Systems  
Sack Trucks  
Trolleys  
Materials Handling Equipment  
Lifting Equipment  
Precision CNC Machining  
Welding & Fabrication  
Vulkollan® Tyred Wheels  
Workshop Cranes  
Pallet Trucks  
Mobile Safety Steps  
and more...





BILGroup brands



**BIL Group Limited**

Porte Marsh Road  
Calne  
Wiltshire  
SN11 9BW  
United Kingdom

Tel: +44 (0)1249 822222  
Fax: +44 (0)1249 822300

[sales@bilgroup.co.uk](mailto:sales@bilgroup.co.uk)  
[www.bilgroup.co.uk](http://www.bilgroup.co.uk)



Catalogue **BTU.1**



**ALWAYSE**

Ball transfer units