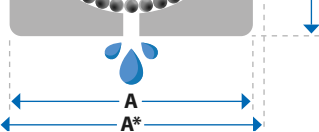




Medium Duty ball units are machined from solid steel & case hardened for wear resistance. Reinforced machined steel top cap protect against impact from misalignment of the conveyed item. Lubricated for life & zinc plated for resistance to corrosion. Standard materials; Body & cap AISI 1015, Balls AISI 52100. Stainless steel upgrade A & 'SS' feature AISI420 balls & body. Main ball sizes ≥19mm incorporate a felt seal to minimise contamination. 'M', 'MF', 'MG' & 'MS' Series feature a single drain hole.

M Series - PUSH FIT

MAXIMUM LOAD CAPACITY & NETT WEIGHT (kg)																
	Standard		A		D		SS									
	Chrome steel bearings, zinc plated body & cap		Stainless steel balls, zinc plated body & cap		Nylon load ball, zinc plated body & cap		Stainless steel balls, body & cap									
PART	LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT	BALL Ø	A	A*	B	B*	C	D	E
M12 *	25	0.038	20	0.038	5	0.031	20	0.038	12	22		8		3.2	27	16.7
M14	60	0.053	50	0.053	10	0.039	50	0.051	15	24	25.0-25.5	8.1	8.4	5	30	20
M15 *	60	0.059	50	0.059	10	0.044	50	0.058	15	24	25.0-25.5	9.5	9.8	4	31	21
M22	180	0.189	180	0.188	20	0.150	126	0.188	22	36	37.0-37.2	9.8	10.1	3.8	45	30.5
M25 *	200	0.193	140	0.192	25	0.137	140	0.192	25	38		13		6	46	30.5
M30	350	0.360	350	0.357	25	0.277	220	0.357	30	45	46.3-46.7	13.8	14.01	5.8	55	36.8
M45	600	1.010	600	1.000	25	0.710	350	1.020	45	62	63.0-63.5	19	19.3	9	75	53.5
M60	1500	3.710	1100	3.820	N/A	N/A	1050	3.830	60	100		30		15	117	77.5

*

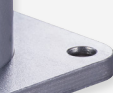
 Denotes pressed top cap

When using K clips dimensions A & B change to A* & B*

Fixing Options:
Page 15.



MF Series - BOTTOM FLANGE



MF Series - BOTTOM FLANGE

										MAXIMUM LOAD CAPACITY & NETT WEIGHT (kg)					
PART	BALL Ø	A	B	C	D	EXE	F X F	G	H	Standard		A		D	
										LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT
MF12 *	12	23.9	20.7	17.2	3.5	44.5	34.9	3.2	2 x 3.6	25	0.103	20	0.103	5	0.100
MF15	15	24	20	16	5	45	32	5.0	4 x 4.6	60	0.049	50	0.048	10	0.089
MF22	22	36	30.5	26	4.5	57.2	44.5	5.0	4 x 5.6	180	0.177	180	0.257	20	0.219
MF30	30	45	36.8	30.3	6.5	76.2	57.9	6.3	4 x 7.1	350	0.501	350	0.504	25	0.416
MF45	45	62	53.5	45	8.5	85	69	6.3	4 x 7.1	600	1.138	600	1.168	25	0.928

 Denotes pressed top cap

 MF12 has a 44.5mm circular flange with 2 fixing holes

MS Series - TOP FLANGE



MS Series - TOP FLANGE

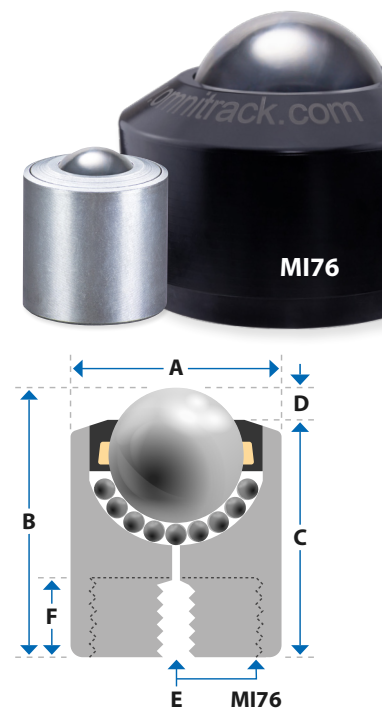
									MAXIMUM LOAD CAPACITY & NETT WEIGHT (kg)					
PART	BALL Ø	A	B	C	D X D	E X E	F	G	Standard		A		D	
									LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT
MS12 *	12	23.9	9.6	11.1	44.5	34.9	3.2	2 x 3.6	25	0.103	20	0.100	5	0.100
MS15	15	24	11.3	9.7	45	32	5.0	4 x 4.6	60	0.059	50	0.059	10	0.044
MS22	22	36	11.8	18.7	57.2	44.5	5.0	4 x 5.6	180	0.189	180	0.188	20	0.150
MS30	30	45	16.8	20	76.2	57.9	6.3	4 x 7.1	350	0.360	350	0.357	25	0.277
MS45	45	62	22	31.5	85	69	9.5	4 x 7.1	600	1.010	600	1.000	25	0.710

✱ Denotes pressed top cap
● MF12 has a 44.5mm circular flange with 2 fixing holes

MI Series INTERNAL THREAD FIXING

PART	BALL Ø	A	B	C	D	E	F	MAXIMUM LOAD CAPACITY & NETT WEIGHT (kg)					
								Standard		A		D	
								LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT
								LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT
MI12 *	12	22	24	20.5	3.5	M8 x 1.25	5	25	0.050	20	0.050	5	0.043
MI15	15	24	28	23	5	M8 x 1.25	8	60	0.074	50	0.074	10	0.061
MI22	22	36	40.5	36	4.5	M8 x 1.25	10	180	0.254	180	0.256	20	0.210
MI30	30	45	46.8	38.8	6.5	M8 x 1.25	10	350	0.460	350	0.450	25	0.360
MI45	45	62	63.5	50.5	9	M8 x 1.25	10	600	1.180	600	1.170	25	0.950
MI76	76.2	127	101.4	78.1	23.3	3.5" x 8 TPI NPSM	37.3	1000	6.060	1000	6.050	25	4.565

* Denotes pressed top cap MI76 only - User Serviceable



MG Series PLAIN FITTING

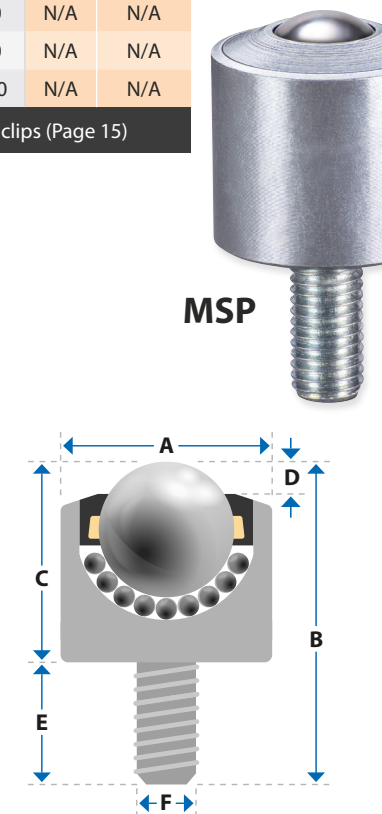
PART	BALL Ø	A	B	C	D	MAXIMUM LOAD CAPACITY & NETT WEIGHT (kg)					
						Standard		A		D	
						LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT
						LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT
MG8 *	8	18	12	10	2	13	0.017	10	0.018	5	0.016
MG10	10	20	16.5	13.5	3	25	0.028	20	0.028	5	0.022
MG12 *	12	22	17.5	14	3	25	0.035	20	0.034	5	0.027
MG15	15	24	20	15	5	60	0.049	50	0.048	10	0.035
MG22	22	36	30.5	26	4.5	180	0.177	180	0.178	20	0.140
MG30	30	45	36.8	30.3	6.5	350	0.335	350	0.338	25	0.250
MG45	45	62	53.5	45	9	600	0.940	600	0.97	25	0.730
MG60	60	100	77.5	61	16.5	1500	3.650	1100	3.590	N/A	N/A
MG76	76	130	103	80	23	2500	8.600	1700	8.600	N/A	N/A
MG90	90	145	115	90	25	3500	11.310	2400	11.310	N/A	N/A

* Denotes pressed top cap Dimension A changes when using fixing clips (Page 15)

MSP Series - BOLT FITTING

PART	BALL Ø	A	B	C	D	E	F	MAXIMUM LOAD CAPACITY & NETT WEIGHT (kg)					
								Standard		A		D	
								LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT
								LOAD	WEIGHT	LOAD	WEIGHT	LOAD	WEIGHT
MSP8 *	8	18	27	12	2	15	M6 x 1.0	13	0.021	8	0.021	3	0.019
MSP10	12	20	29.8	17.8	3	12	M8 x 1.25	25	0.036	20	0.036	5	0.031
MSP11	12	20	48	20	3	28	M6 x 1.0	25	0.044	20	0.043	5	0.040
MSP12 *	12	22	42.5	22.5	3	20	M8 x 1.25	25	0.039	20	0.039	5	0.039
MSP14	15	24	32	20	5	12	M6 x 1.0	60	0.055	50	0.065	10	0.042
MSP15	15	25	46	26	5	20	M8 x 1.25	60	0.083	50	0.083	10	0.069
MSP19	19	30	46.5	26	4.8	20.5	M8 x 1.25	75	0.109	55	0.113	20	0.088
MSP22	22	36	62.9	37.5	4.5	25.4	M12 x 1.75	180	0.256	180	0.256	20	0.200
MSP30	30	45	69.2	43.8	6.5	25.4	M12 x 1.75	350	0.440	350	0.430	25	0.346
MSP45	45	62	107.3	66	8.5	41.3	M20 x 2.5	600	1.360	600	1.350	25	1.100

* Denotes pressed top cap





MN / MM Series - HOUSED SPRING LOADED

PART	SUPPORTS LOAD (kg)	DEFLECTION (mm)	LOAD AT MAX DEFLECTION (kg)	BALL Ø	A	B	C	D	E
MN12	40	1.5	90	12.7	23.9	30	24.5	28.5	10.5
MN16	60	1.5	110	15.8	29.9	36	30.5	34.5	10.5
MN25	100	1.5	175	25.4	39.8	48	40.5	46.5	10.5
MN30	335	1.5	585	30	49.9	60	50.5	58.5	12.3
MM22	70	4.5	90	22	39	58	50	14	53.5
MM30	135	7	170	30	48.5	70	62	17.5	63
MM45	230	10.5	290	45	66.5	100.5	85	25.5	90

A STAINLESS STEEL BALLS UPGRADE: Improved corrosion resistance with no change in load or spring values. Add suffix A

Alternative spring-loaded & pneumatic solutions:
Pages 8 - 11.



MV, MX & MW - AIR CARGO BALL UNITS

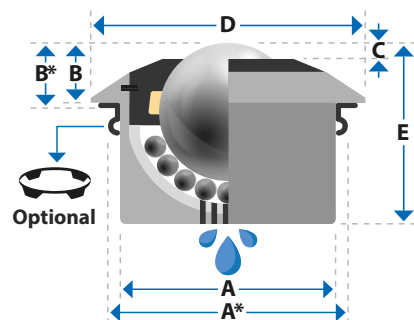
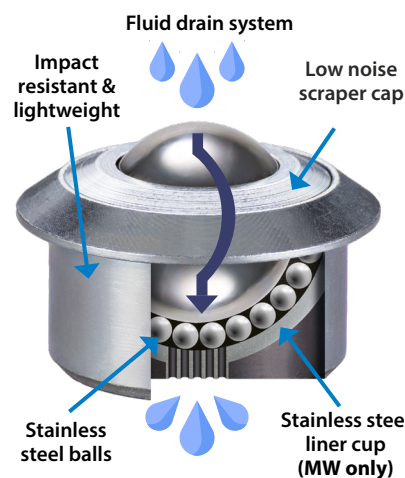
Compliant with ISO Air cargo industry standards these units utilise stainless steel (AISI 420) balls recirculating within a precision machined Steel (AISI 1015) housing. All models feature fluid drain & omit felt seal. Consult page 15 for C-type (stainless steel) & K-type (spring steel) optional fixing clips.

SERIES	HIGH TEMPERATURE	LOAD & SHOCK	LOW NOISE	CORROSION RESISTANCE	CONSTRUCTION FEATURES
MV	✓✓	✓✓✓	✓✓✓	✓✓	E Light weight construction
MX	✓✓✓	✓✓	✓✓	✓	SS Stainless Steel
MW	✓	✓	✓	✓✓✓	SL Stainless Liner Cup

MV Imperial Series: Moulded scraper cap reduces weight & noise levels during operation. Self-cleaning multiple drain slots. Compact inch series dimensions ideal for high-density ball cargo decks.

MX Cargo Series: Steel scraper cap protects against impact damage from misaligned loads. Multiple debris/drain channels rapidly eject contamination & fluid.

MW Washdown Series: Internal stainless steel liner cup provides a cost efficient alternative to all stainless steel construction. Effective corrosion resistance & fluid draining in washdown applications. Also available in all stainless steel.



PART	LOAD (kg)	BALL Ø	WITHOUT CLIP		WITH K-TYPE CLIP			C	D	E	DRAIN CHANNELS	WEIGHT (kg)
			A	B	CLIP #	A*	B*					
MV30	350	30	45	13.8	K30	46.0 - 46.5	14.1	5.5	50	34.8	4 slots	0.290
MX30	350	30	45	13.8	K30	46.0 - 46.5	14.1	5.5	55	36.8	7 holes	0.355
MW30	220	30	45	13.8	K30	46.0 - 46.5	14.1	5.5	55	36.8	5 holes	0.337
MX45	600	45	62	19	K45	63.0 - 63.5	19.3	9	75	53.5	7 holes	1.010
MW45	450	45	62	19	K45	63.0 - 63.5	19.3	9	75	53.5	1 hole	0.960

Fixing clips change A & B values to A & B*

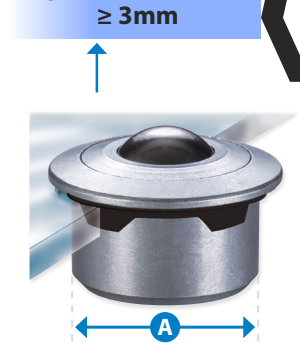
K & C Type Clips

- ✓ Compensate for irregularities in bore & diameter.
- ✓ Ideal where only single-sided access of mounting surface is reachable.

MEDIUM DUTY	LIGHT DUTY	CLIP	BORE Ø MIN / MAX	A
M12 MI12		K12	23 - 23.5	22
M14 M15 MI15 MG15	L15 LP15	K15 C15	25.0 - 25.5 24.8 - 25.0	24
M22 MI22 MG22	L22 LP22	K22 C22	37.0 - 37.5 37.0 - 37.2	36
M30 MI30 MG30 MV30 MX30 MW30	L30 LP30	K30 C30	46.0 - 46.5 46.3 - 46.7	45
M45 MI45 MG45 MX45 MW45	L45 LP45	K45	63.0 - 63.5	62

Clips made from Spring Steel - 0.3mm thick.
The projection is increased by 0.3mm when using the clips.

Optimal Retention
≥ 3mm



- 1 Fit clip to mounting bore.
- 2 Push ball unit through clip.
- 3 Peripheral tags expand & grip the ball unit.



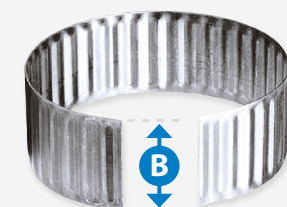
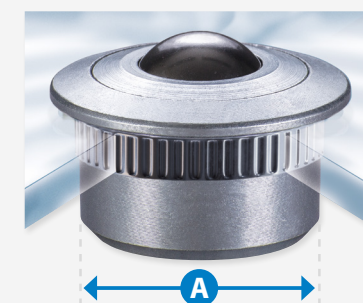
Other clips available.

Tolerance Rings

- ✓ Compensate for irregularities in bore & diameter.
- ✓ Ideal where only single-sided access of mounting surface is reachable.

HEAVY DUTY	MEDIUM DUTY	LIGHT DUTY	PART	BORE Ø MIN / MAX	A	B
	MG8		TR18	19.30 - 19.55	18	6.00
8000 8001 *	MG10		TR20	21.80 - 22.05	20	12.00
8010 *	M12 MI12 MG12		TR22	23.80 - 24.05	22	12.00
8020 * 8300 * 8310 *	M14 M15 MI15 MG15	L15 LP15	TR24	25.65 - 25.90	24	15.00
8500 * 8501 * 8601 *			TR25	27.20 - 27.45	25	8.00
	M22 MI22 MG22 MM22	L22 LP22	TR36	37.80 - 38.00	36	12.00
9020 * 9021 * 9022 * 9320 * 9321 *	M30 MI30 MG30 MM30 MV30 MX30 MW30	L30 LP30	TR45	46.80 - 47.00	45	15.00
9030 9031 * 9330 9520 *			TR50	51.90 - 52.10	50	15.00
9040 9041 * 9042 * 9341	MM45		TR60	62.10 - 62.30	60	20.00
9530 *	M45 MI45 MG45 MX45 MW45	L45 LP45	TR62	64.30 - 64.50	62	20.00
9540 * 9640 *			TR70	72.35 - 72.55	70	20.00
9050 9051 * 9350	M60 MG60		TR100	103.75 - 104.05	100	20.00

Bore Ø specifications change when using Tolerance Rings. Contact us if in doubt
* Ø Min / Max tolerance varies



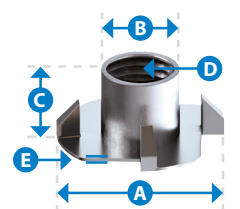
98 Series - Page 6.

Nyloc Nut & Washer + 'T' Wood Insert Kits

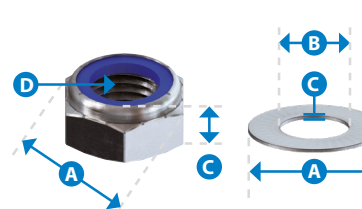
Use with Heavy Duty 81 & 91 series, Medium Duty MSP series & Omnicaster Ball Casters.



Wood Insert Fixing



Nut & Washer Fixing



MODEL	8100 8101			OC35 OC50 OC55 OC55B			9120 9123 9130 9133		
	MSP10 MSP12 MSP15 MSP19						MSP22 MSP30		
FIXING	OC30 OC30F						OC100 OC100B		
	T8	N8		T10	N10		T12	N12	
A	22.2	14.4	16	25	18.9	20	27	21.1	24
B	9.1	13	8	11.2	17	10	14	19	12
C	11	8	1.6	13.1	10	2	14	12	2.5
D	M8 x 1.25	M8 x 1.25		M10 x 1.5	M10 x 1.5		M12 x 1.75	M12 x 1.75	
E	1.3	-	-	1.4	-	-	1.8	-	-

Other thread types & sizes available on request