

# PANDROL VANGUARD

## INSTALLATION REFERENCE LIST



Year	Country	Authority	No	Build	Rail	Track	Fixed To	Description	Axle	Speed	Curvature
1999	Czech Republic	Velim Test Track	162	New	UIC 60	Ballast	Concrete	Silent Track project - 81 concrete sleeper (Trial)			Tangent
2000	UK	London Underground	268	Retrofit	BS 113A	Slab	Concrete	Victoria Line trial site - 134Tarmac sleepers installed	11 tonnes	70 kph	345 m
2000	UK	Network Rail	112	Retrofit	BS 113A	Ballast	Concrete	Waterloo East nr Hungerford Bridge - 56 RMC concrete sleepers	17 tonnes	50 kph	
2001	Spain	Madrid Metro	100	Retrofit	UIC 54	Slab	Concrete	Line 11. Installed on "hedgehog" blocks retrofit, August 2001.	12.5 tonnes	50 kph	250 m
2001	Spain	Madrid Metro	400	New	UIC 54	Slab	Concrete	Line 8. Installed on "hedgehog" blocks new construction, November 2001	12.5 tonnes	100 kph	
2002	Hong Kong	MTRC	150	Retrofit	UIC 60	Slab	Concrete	Siu Ho Wan depot, Airport Line, 01/2002. Understood from Steve Barlow	16 tonnes	60 kph	Tangent
2003	Hong Kong	MTRC	160	Retrofit	UIC 60	Ballast	Concrete	Siu Ho Wan depot, Airport Line. Installed on concrete sleepers in ballast	16 tonnes		Tangent
2003	Italy	ATM, Milan	280	Retrofit	UNI 50	Slab	Concrete	Retrofit in Line 1 at mid-span			
2003	Italy	ATM, Milan	170	Retrofit	UNI 50	Slab	Concrete	Retrofit on curve in Line 2 by 02/2003			
2003	UK	CTRL	3500	New	UIC 60	Slab	Concrete	St Pancras Station, London. Eastern Interim Station. P11-13	22 tonnes	50 kph	
2003	USA	MBTA Boston	1700	Retrofit	115RE	Ballast	Wood	Charles St / MGH - Park tunnel. Baseplates to be installed on timber sleepers	12 tonnes		
2004	China	GZM L1	700	Retrofit	60 kg	Slab	Concrete	Guangzhou Metro Line 1 trial	16 tonnes	70 kph	300 m
2004	Hong Kong	MTRC	270	Retrofit	UIC60	Slab	Concrete	Originally for retrofit on slab at Hang Hau station during early 2003.	16 tonnes	40 kph	300 m
2004	Norway	Jernbaneverket	32	New	UIC60	Ballast	Concrete	Small scale trial at Asker			
2004	Spain	Barcelona Metro	400	Retrofit	UIC54	Ballast	Wood	Trial	12 tonnes	50 kph	
2004	USA	PATCO	80	Retrofit	132RE	Slab	Concrete	Port Authority Transport Co (PATCO) New Jersey Assy 10343, 80 baseplates	11 tonnes		
2005	Australia	PTA	130	Retrofit	AS60 kg	Slab	Concrete	Perth-Mandurah, Roe St Tunnel (Trial)	14 tonnes	50 kph	Tangent
2005	China	GZM L3	2442	New	60 kg	Slab	Concrete	Guangzhou Metro Line 3 - 3 tunnels	16 tonnes	90 kph	300 m/min

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2005	China	GZM L3	2820	New	60 kg	Slab	Concrete	Guangzhou Metro Line 3 - Guangzhou Theatre - July	16 tonnes	90 kph	
2005	China	GZM L4	990	New	60 kg	Slab	Concrete	Guangzhou Metro Line 4 - 13 tonnes + 2.5 tonnes magnetic force	15.5 tonnes	90 kph	
2005	UK	Network Rail	2000	New	UIC60	Slab	Concrete	Thameslink Box	17 tonnes		
2005	UK	Newcastle Metro	110	Retrofit	BS 113A	Slab	Concrete	Byker Viaduct and Manor Station			
2006	Australia	PTA	10000	New	AS60 kg	Slab	Concrete	Perth-Mandurah	14 tonnes	110 kph	140 m
2006	China	GZM L3	6010	New	60kg	Slab	Concrete	Guangzhou Metro Line 3 - order 5878 - March	16 tonnes	90 kph	
2006	UK	CTRL	4500	New	UIC60	Slab	Concrete	St Pancras Station, London. Western Interim Station P1-4	22 tonnes	50 kph	
2006	UK	CTRL	8000	New	UIC60	Slab	Concrete	St Pancras Station, London. International station P5-10	22 tonnes	50 kph	
2007	China	Beijing Metro L5	25830	Retrofit	60 kg	Slab	Concrete	Retrofit assembly	14 tonnes	80 kph	400 m Tangent
2007	China	GZM L5	1216	New	60 kg	Slab	Concrete	Guangzhou Metro Line 5 - 13 tonnes + 2.5 tonnes magnetic force	15.5 tonnes	90 kph	
2007	China	GZM L5	5134	New	60 kg	Slab	Concrete	Guangzhou Metro Line 5 - 13 tonnes + 2.5 tonnes magnetic force	15.5 tonnes	90 kph	
2007	UK	DLR-WAX	990	Retrofit	BS80A	Slab	Concrete	DLR Woolwich Arsenal Extension	10 tonnes	80 kph	300 m
2008	China	Beijing Metro L5	7380	Retrofit	60 kg	Slab	Concrete	Retrofit assembly			
2008	China	GZM L5	2538	New	60 kg	Slab	Concrete	Guangzhou Metro Line 5 - 13 tonnes + 2.5 tonnes magnetic force	15.5 tonnes	90 kph	
2008	China	GZM L5	4096	New	60 kg	Slab	Concrete	Guangzhou Metro Line 5 - 13 tonnes + 2.5 tonnes magnetic force	15.5 tonnes	90 kph	
2008	China	Shenyang Metro L1	5562	New	60 kg	Slab	Concrete	Shenyang Metro Line 1	14 tonnes		
2008	UK	DLR-LEX	4000	Retrofit	BS80A	Slab	Concrete	DLR Lewisham Refurbishment	10 tonnes	80 kph	96 m
2008	UK	DLR 3 CAR	800	Retrofit	BS80A	Slab	Concrete	DLR 3 CAR Extension	10 tonnes	90 kph	96 m
2009	Brazil	Sao Paulo L1	2000	Retrofit	115RE	Slab	Concrete	Retrofit assembly			
2009	China	Beijing Metro	1694	New	60 kg	Slab	Concrete	Beijing Yizhuang Line	14 tonnes	80 kph	400 m
2009	China	Beijing Metro L15	1285	New	60 kg	Slab	Concrete	Beijing Metro Line 15 - 14 tonnes	14 tonnes	100 kph	400 m
2009	China	Beijing Metro L5	1804	Retrofit	60 kg	Slab	Concrete	Retrofit assembly			
2009	China	GZM L3 Extension	6328	New	60 kg	Slab	Concrete	Guangzhou Metro Line 3 Extension - Airport Line	16 tonnes	100 kph	
2009	China	GZM L5	8096	New	60 kg	Slab	Concrete	Guangzhou Metro Line 5 - 13 tonnes + 2.5 tonnes magnetic force	15.5 tonnes	90 kph	
2009	China	Nanjing Metro L1	836	Retrofit	60 kg	Slab	Concrete	Retrofit assembly			
2009	China	Nanjing Metro L2	1476	New	60 kg	Slab	Concrete	Nanjing Metro L2	14 tonnes	80 kph	300 m

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2009	China	Nanjing Metro L2	1710	New	60 kg	Slab	Concrete	Nanjing Metro L2	14 tonnes	80 kph	300 m
2009	China	Shanghai Metro L8	1350	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L8 - DTIII2	16 tonnes	80 kph	300 m
2009	China	Shanghai Metro L8	650	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L8 - Egg	16 tonnes	80 kph	300 m
2009	China	Shanghai Metro L8	2650	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L8 - DTIII2	16 tonnes	80 kph	300 m
2009	China	Shenyang Metro L1	384	Retrofit	60 kg	Slab	Concrete	Shenyang Metro L1	16 tonnes	80 kph	300 m
2009	Korea	KRTC	4200	New	60 kg	Slab	Concrete	Doonrang metro	17 tonnes	80 kph	
2009	USA	PATCO	7000	New	115RE	Slab	Concrete	Concrete Viaduct	16 tonnes		
2010	Brazil	Sao Paulo L1	820	Retrofit	115RE	Slab	Concrete	Retrofit assembly	14 tonnes		
2010	Brazil	Sao Paulo L1	520	Retrofit	115RE	Slab	Wood	Retrofit assembly	14 tonnes		
2010	China	Shanghai Metro L8	1460	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L8 - Egg	16 tonnes	80 kph	300 m
2010	China	Shanghai Metro L8	5454	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L8 - DTIII2	16 tonnes	80 kph	300 m
2010	China	Shanghai Metro L8	4300	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L8 - DTIII2	16 tonnes	80 kph	300 m
2010	China	Shanghai Metro L9	850	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L8 - DTIII2	16 tonnes	80 kph	300 m
2010	China	Shenyang Metro L1	144	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L1	16 tonnes	80 kph	300 m
2010	Serbia	Belgrade Central Station	3000	New	UIC60	Slab	Concrete	Belgrade Central Station	22 tonnes		
2010	Spain	Madrid Metro	1500	New	UIC54	Slab	Concrete	Line . 9			
2010	China	Shanghai Metro L1 - Egg	650	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L1 - Egg	16 tonnes	80 kph	
2010	China	Shanghai Metro L9 - DTIII2	834	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L9 - DTIII2	16 tonnes	80 kph	
2010	China	Shanghai Metro L2 - DTIII A	2520	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L2 - DTIII A	16 tonnes	80 kph	
2010	China	Shanghai Metro L1 - Egg	3520	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L1 - Egg	16 tonnes	80 kph	
2010	China	Shanghai Metro L2 - Egg	82	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L2 - Egg	16 tonnes	80 kph	
2010	China	Shanghai Metro L4 - DTIII2	2080	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L4 - DTIII2	16 tonnes	80 kph	
2010	China	Shanghai Metro L8 - DTIII2	788	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L8 - DTIII2	16 tonnes	80 kph	
2010	China	Shenyang Metro L2	7897	New	60 kg	Slab	Concrete	Shenyang Metro L2	16 tonnes	80 kph	
2010	China	Nanjing Metro L1	960	Retrofit	60 kg	Slab	Concrete	Nanjing Metro L1	16 tonnes	80 kph	
2011	Spain	Madrid Metro Phase . 2	1500	New	UIC54	Slab	Concrete	Line . 9			
2011	UK	Network Rail	1800	New	UIC60	Slab	Concrete	St. Pancras Chambers tunnel	17 tonnes		
2011	China	Shanghai Metro L10- Lord/GB	1020	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L10-Lord/GB	16 tonnes	80 kph	
2011	China	Nanjing Metro L1	840	Retrofit	60 kg	Slab	Concrete	Nanjing Metro L1	14 tonnes	80 kph	

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2011	China	Shanghai Metro L3- WJ-2	2200	Retrofit	60 kg	Slab/Viaduct	Concrete	Shanghai Metro L3- WJ-2	16 tonnes	80 kmh	
2011	China	Beijing Metro L15	485	New	60 kg	Slab	Concrete	Beijing Metro L15	16 tonnes	80 kph	
2011	China	Beijing Metro Daxing	928	Retrofit	60 kg	Slab	Concrete	Beijing Metro Daxing	16 tonnes	80 kph	
2011	China	Shenyang Metro L1	798	Retrofit	60 kg	Slab	Concrete	Shenyang Metro L1	16 tonnes	80 kph	
2012	Norway	Oslo Metro	1600	Retrofit	S49	Slab	Concrete	Oslo Metro NV	16 tonnes		
2012	Russia	Moscow Metro	200	Trial	R65	Slab	Concrete	Approval Trial	17 tonnes		
2012	UK	LUL Central Line	600	Retrofit	UIC54	Slab	Concrete	e-clip special design	12 tonnes		
2012	Sweden	Stockholm Metro		Retrofit	S49	Slab	Concrete				
2012	China	Wuhan Metro L2	4200	New	60 kg	Slab	Concrete	Wuhan Metro L2	16 tonnes	80 kph	
2012	China	Shanghai Metro L10 - Egg	1144	Retrofit	60 kg	Slab	Concrete	Shanghai Metro L10 - Egg	16 tonnes	80 kph	
2012	China	Nanjing Metro L2 - DT VI2	1150	Retrofit	60 kg	Slab	Concrete	Nanjing Metro L2- DT VI2	14 tonnes	80 kph	
2012	China	Changsha Metro L2	6000	New	60 kg	Slab	Concrete	Changsha Metro L2	16 tonnes	80 kmh	
2012	Serbia	Belgrade Central Station Phase. 2	3000	New	UIC60	Slab	Concrete	Belgrade Central Station	22 tonnes		
2013	Hong Kong	Express Rail Link	10700	New	UIC60	Slab	Concrete	New rail link	16 tonnes	70 kmh	
2013	Hong Kong	MTR	10700	New	UIC60	Slab	Concrete	Express Rail Link	15 tonnes	160 kph	
2013	Hong Kong	MTRC	1860	New	UIC60	Slab	Concrete	Kwun Tong Line Extension			
2013	Hong Kong	MTRC	448	New	UIC60	Slab	Concrete	South Island Line (SIL) Tender			
2013	Hong Kong	MTRC	2680	New	UIC60	Slab	Concrete	Kwun Tong Line Extension (KTE) Tender	17 tonnes	80 kph	300 m
2013	Italy	Rome Metro	1026	Retrofit	50UNI	Slab	Concrete	Roma Metropolitan	14 tonnes		Tangent
2013	Japan		320	New	50N	Slab	Concrete	WJR			
2013	Sweden	Trafikverket	718	New	UIC60	Slab	Concrete	Bilfinger Berger Viaduct, Stockholm	25 tonnes	80 kph	Tangent
2014	UK	Network Rail	708	New	UIC60	Slab	Concrete	Crossrail – Pudding Mill Lane DLR Station Re-Alignment	11 tonnes	80 kph	
2014	Turkey	Istanbul Metro	5834	New	S49	Slab	Steel	Golden Horn Bridge	15 tonnes	60 kph	Tangent
2014	UK	London Underground	600	Retrofit	BS113A	Slab	Concrete	Central Line installed at Holland Park	11 tonnes	70 kph	
2015	Serbia	Belgrade Central Station Phase. 2	10600	New	UIC60	Slab	Concrete	Belgrade Central Station	22 tonnes		
2015	UK	London Underground	1600	Retrofit	BS113A	Slab	Concrete	Central Line installed at Holland Park	11 tonnes	70 kph	UK
<b>Total</b>			<b>249,124</b>								