

The **STATE**
OF THE ARC™

SEAMLESS HDPE
ARC BENDS™



PIPESTAR
AFRICA

Mar 2022



Major Features:

Pipestar Africa offers a range of seamless long radius ARC™ HDPE sweep bends made to the highest quality standards.

Pipestar Africa offers a range of seamless, HDPE ARC Bends™ produced through a unique patented manufacturing process. The name ARC™ comes from the word ARChetype which means “original pattern or model of which all things of the same type are representations or copies.” ARC™ sweep bends are hot forged from polyethylene PE 100 pressure pipes.

- Improved roundness
- No Mitred Fusion Joints
- Seamless Smooth Interior
- Virtually no flow restriction
- Fully pressure rated
- Wearability increased in slurry lines
- Can manufacture any angles up to 90°
- Suitable for butt-welding, electrofusion or flanging
- No reversion
- Improved welding times



Industry Applications of ARC™ HDPE Sweep Bends

- ✓ Tailings
- ✓ Mines
- ✓ Paper Board Mills
- ✓ Chemical Works
- ✓ Water Supply – Treatment
- ✓ Fire Ring Mains
- ✓ Sewage – Gravity, Pressure & Vacuum
- ✓ Food Processing
- ✓ Thermal Generating Plants
- ✓ Steel Plants
- ✓ Hydro Generating
- ✓ Mechanical Contracting
- ✓ Saw Mills
- ✓ Civil Engineering
- ✓ Oil Refineries
- ✓ Irrigation
- ✓ Gas Distribution
- ✓ Conduit
- ✓ Coal Beneficiation
- ✓ Slurry Lines

BENDS

ARC Bends™ Manufactured to:

- Angular tolerance of $\pm 2^\circ$
- Linear tolerance of $\pm 20\text{mm}$
- Centre line of curvature
3 times the pipe diameter

Long Radius Sweep Bend Specifications

SANS / ISO 4427 and SANS / ISO 4437



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General bend specifications for design engineers

- Manufactured in one continuous piece from HDPE PE 100 pressure pipe
- Centre line radius of curvature 3 x diameter
- Meets Pipestar Africa published dimensional schedule. Dimensional tolerance $\pm 20\text{mm}$
- Outside diameter of the spigot ends shall meet the requirements of ISO 4427/4437. Spigot lengths suitable for butt welding or electrofusion
- The bending process will result in a single piece bend at the angle specified by the engineer, with an angular tolerance $\pm 2^\circ$
- The bends will be shipped to site loose or palletized. No strapping or other foreign material will be placed inside the bend
- Fittings shall be examined for defects by visual inspection in the first instance, or by any other inspection method if required
- Bends should maintain roundness throughout curvature

Freedom from Defects

- The manufacturing process shall not create any grooves, blisters, or other visual defects on the outside surface of the bend
- There shall be no cavities, voids or inclusions in the fittings body and the inside surface shall be smooth, clean and free from grooves or blisters

Marking

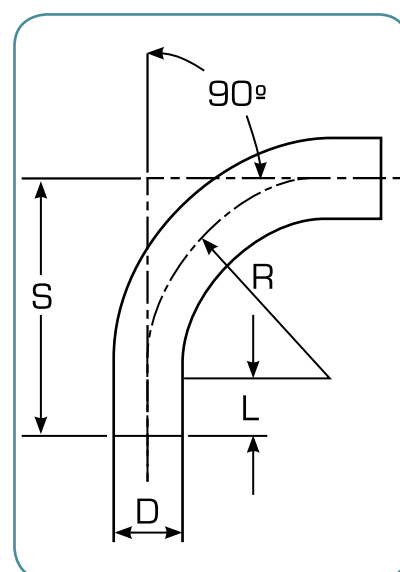
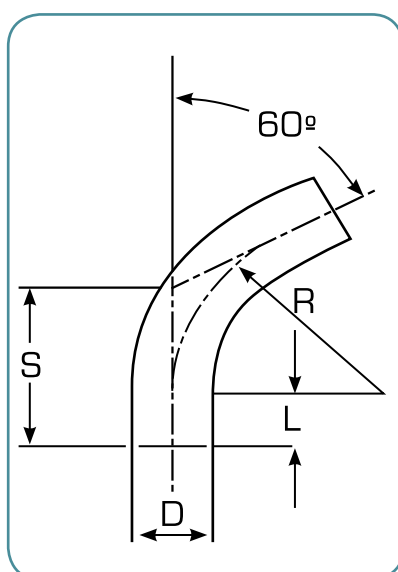
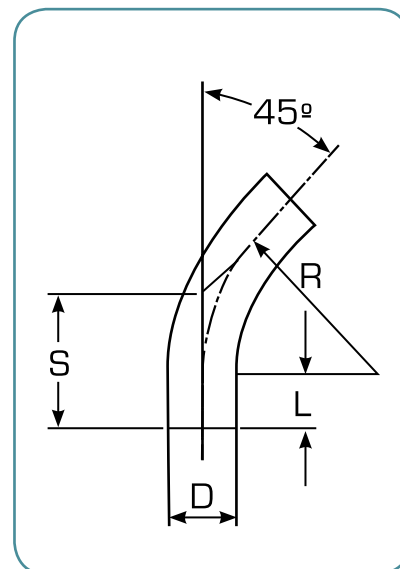
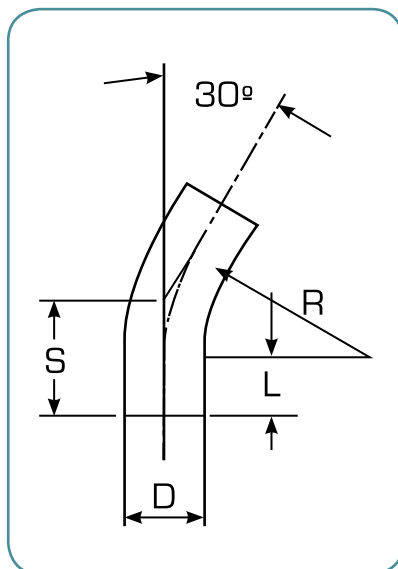
All fittings shall be clearly marked with at least the following information:

- Manufacturers name or Trade mark
- Identification of the material type
- Designated angle of bend
- Outside diameter, SDR and angle of the pipe for which the fitting is intended
- Raw material batch traceability





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PIPESTAR AFRICA ARC BEND™ DIMENSIONS

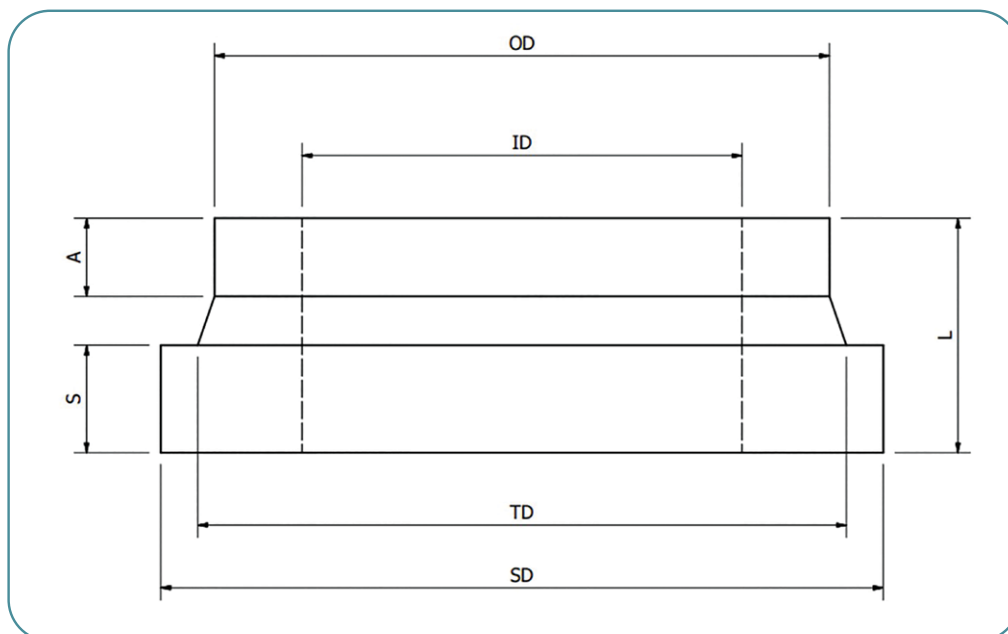
OD	L	R	S-30°	S-45°	S-60°	S-75°	S-90°
mm	mm	mm	mm	mm	mm	mm	mm
50	80	150	129	152	177	220	247
63	80	189	141	170	203	256	290
75	80	225	153	187	226	290	330
90	150	270	238	279	325	402	450
110	150	330	257	307	364	458	517
125	150	375	272	329	394	500	566
140	175	420	311	375	448	567	641
160	200	480	356	429	512	648	733
180	200	540	375	458	551	704	800
200	225	600	420	511	615	785	891
225	270	675	489	592	708	899	1020
250	270	750	514	628	757	969	1103
280	300	840	573	701	846	1083	1233
315	320	945	627	771	934	1201	1370
355	355	1065	701	863	1047	1348	1538
400	370	1200	760	942	1149	1489	1703
450	400	1350	839	1044	1277	1659	1899

PIPESTAR AFRICA STUB DIMENSIONS

OD	SD	TD	S	A	L
mm	mm	mm	mm	mm	mm
40	73	47	12	69	81
50	83	56	12	69	81
63	98	70	12	70	82
75	110	81	13	72	85
90	138	97	17	72	89
110	158	127	27	18	60
125	158	133	27	18	60
140	188	157	27	18	60
160	217	177	35	15	65
180	217	188	35	20	70
200	270	217	35	20	70
225	270	233	45	20	80
250	320	267	45	30	90
280	320	288	45	30	90
315	370	330	55	30	100
355	430	373	60	30	110
400	482	419	65	30	110
450	540	514	65	30	110
500	585	530	70	30	115
560	645	592	70	30	115
630	725	662	70	30	115
710	800	737	70	30	120
800	905	840	70	30	120
900	1005	942	70	30	120
1000	1110	1045	70	30	140



Stubs are available in custom lengths and sizes upon request.



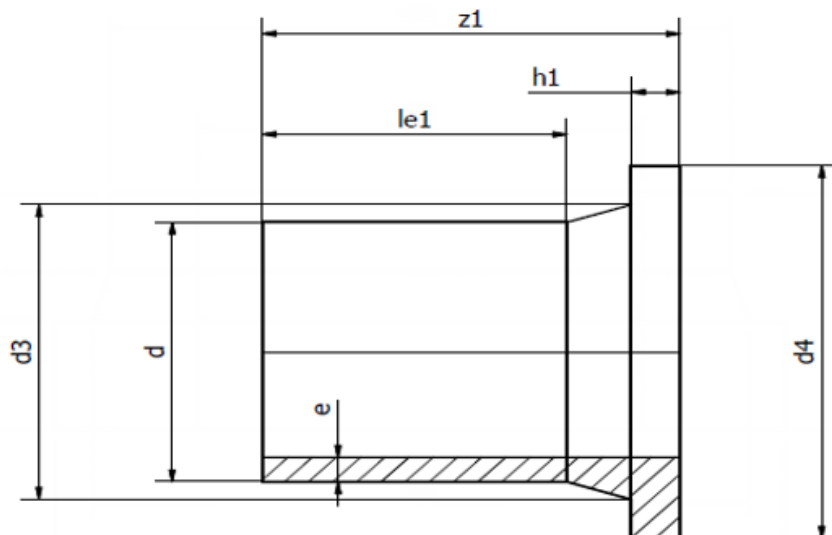


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STUBS

ELONGATED/ELECTROFUSION HDPE STUBS

d	SDR	e	d3	d4	le1	z1	h1
mm	mm	mm	mm	mm	mm	mm	mm
110	17	6,6	125	158	113	158	18
125	17	7,4	132	158	122	170	18
140	17	8,3	153	188	130	173	18
160	17	9,5	175	212	160	208	18
180	17	10,7	186	212	140	200	20
200	17	11,9	232	268	133	199	24
225	17	13,4	235	268	135	201	24
250	17	14,8	285	320	148	220	25
280	17	16,6	291	320	154	230	25
315	17	18,7	335	370	166	242	25
110	11	10	125	158	113	160	18
125	11	11,4	132	158	116	170	25
140	11	12,7	155	188	128	182	25
160	11	14,6	175	212	155	208	25
180	11	16,4	186	212	168	202	30
200	11	18,2	232	268	140	206	32
225	11	20,5	235	268	135	201	32
250	11	22,7	285	320	138	219	35
280	11	25,4	291	320	152	231	35
315	11	28,6	335	370	158	239	35



FLANGES

Carbon steel hot dipped galvanised



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FLANGE DIMENSIONS									FASTENERS		
									PSA RECOMMENDATION		
FLANGE SIZE	OD	ID	THK	PCD	NO.	HOLES	e x 45	KG/PC	D2	P-P	P-S
BS T/D											
25mm	101,6	38	10	73	4	14,3	4	0,50	M12	75	55
32mm	114,3	45	10	82,6	4	14,3	4	0,63	M12	75	55
40mm	120,7	51	10	87,3	4	14,3	4	0,69	M12	75	55
50mm	133,4	63	10	98,4	4	14,3	4	0,80	M12	75	55
63mm	152,4	78	10	114,3	4	17,5	4	0,98	M16	80	60
75mm	165,1	92	10	127	4	17,5	4	1,09	M16	80	60
90mm	184,1	110	10	146	4	17,5	4	1,27	M16	100	70
110mm	215,9	136	10	177,8	4	17,5	4	1,66	M16	110	75
125mm	215,9	136	10	177,8	4	17,5	4	1,66	M16	110	75
140mm	254	158	12	209,6	8	17,5	6	2,75	M16	110	80
160mm	279,4	190	12	235	8	17,5	6	2,93	M16	130	90
180mm	279,4	190	12	235	8	17,5	6	2,93	M16	130	90
200mm	336,3	237	12	292,1	8	17,5	6	4,04	M16	130	90
225mm	336,3	237	12	292,1	8	17,5	6	4,04	M16	150	100
250mm	406,4	279	16	355,6	8	22,2	8	8,23	M20	160	110
280mm	406,4	292	16	355,6	8	22,2	8	7,51	M20	160	110
315mm	457,2	330	19	406,4	12	22,2	8	11,10	M20	190	120
355mm	527,1	376	22	469,9	12	25,4	8	17,50	M24	210	140
400mm	577,9	430	22	520,7	12	25,4	8	19,20	M24	220	130
450mm	641,4	476	25	584,2	12	25,4	8	27,30	M24	230	150
500mm	704,9	533	28	641,4	16	25,4	8	35,00	M24	250	160
560mm	762	592	28	698	16	28,6	8	37,50	M24	250	160
630mm	825,5	645	30	755,7	16	28,6	8	46,80	M24	260	170
SANS 1123 - T1000											
50mm	150	63	10	110	4	18	4	1,07	M16	80	60
63mm	165	78	10	125	4	18	4	1,23	M16	80	60
75mm	185	92	12	145	4	18	4	1,82	M16	85	65
90mm	200	110	12	160	8	18	4	1,88	M16	100	70
110mm	220	136	12	180	8	18	4	2,03	M16	110	80
125mm	220	136	12	180	8	18	4	2,03	M16	110	80
140mm	250	158	14	210	8	18	6	3,02	M16	120	80
160mm	285	190	16	240	8	22	6	4,08	M20	140	100
180mm	285	190	16	240	8	22	6	4,08	M20	140	100
200mm	340	237	18	295	8	22	6	6,17	M20	150	100
225mm	340	237	18	295	8	22	6	6,17	M20	170	110
250mm	395	279	20	350	12	22	8	8,93	M20	170	120
280mm	395	292	20	350	12	22	8	8,02	M20	170	120
315mm	445	330	22	400	12	22	8	11,30	M20	200	130
355mm	505	376	25	460	16	22	8	16,40	M20	210	150
400mm	565	430	25	515	16	26	8	19,10	M24	230	150
450mm	615	476	30	565	20	26	8	25,60	M24	240	160
500mm	670	533	30	620	20	26	8	28,10	M24	250	170
560mm	730	592	35	675	20	26	8	36,50	M24	260	180
630mm - 725 PCD	780	645	36	725	20	26	8	39,80	M24	260	180
630mm - 780 PCD	835	662	36	780	20	26	8	54,60	M24	260	180
710mm	895	737	40	840	24	26	8	59,70	M24	270	190
800mm	1015	840	45	950	24	33	8	82,90	M30	290	200
900mm	1115	942	50	1050	28	33	8	100,40	M30	300	210
1000mm	1230	1045	55	1160	28	33	8	132,50	M30	300	220



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FLANGES

Carbon steel hot dipped galvanised

FLANGE DIMENSIONS									FASTENERS		
									PSA RECOMMENDATION		
FLANGE SIZE	OD	ID	THK	PCD	NO.	HOLES	e x 45	KG/PC	D2	P-P	P-S
SANS 1123 - T1600											
25mm	105	38	10	75	4	14	4	0,55	M12	75	55
32mm	115	45	10	85	4	14	4	0,65	M12	75	55
40mm	140	51	10	100	4	18	4	0,97	M16	75	55
50mm	150	63	10	110	4	18	4	1,07	M16	80	60
63mm	165	78	12	125	4	18	4	1,47	M16	80	65
75mm	185	92	12	145	4	18	4	1,82	M16	85	65
90mm	200	110	14	160	8	18	4	2,19	M16	100	75
110mm	220	136	14	180	8	18	4	2,36	M16	120	80
125mm	220	136	14	180	8	18	4	2,36	M16	120	80
140mm	250	158	16	210	8	18	6	3,45	M16	120	90
160mm	285	190	18	240	8	22	6	4,59	M20	150	100
180mm	285	190	18	240	8	22	6	4,59	M20	150	100
200mm	340	237	22	295	12	22	6	7,28	M20	150	110
225mm	340	237	22	295	12	22	6	7,28	M20	170	120
250mm	405	279	25	355	12	26	8	12,05	M24	190	130
280mm	405	292	25	355	12	26	8	10,90	M24	190	130
315mm	460	330	28	410	12	26	8	16,40	M24	220	150
355mm	520	376	30	470	16	26	8	21,90	M24	230	160
400mm	580	430	32	525	16	26	8	27,80	M24	240	160
450mm	640	476	35	585	20	26	8	36,60	M24	250	170
500mm	715	533	40	650	20	33	8	50,70	M30	280	190
560mm	775	592	40	710	20	33	8	56,40	M30	280	190
630mm	840	645	50	770	20	33	8	82,70	M30	300	210
710mm	910	737	50	840	24	33	8	79,90	M30	300	210
800mm	1025	840	60	950	24	39	8	114,30	M36	320	240
900mm	1125	942	65	1050	28	39	8	134,70	M36	330	250
1000mm	1255	1045	70	1170	28	39	8	190,30	M36	330	260
SANS 1123 - T2500											
90mm	200	103	22	160	8	18	4	3,64	M16	120	90
110mm	235	136	25	190	8	22	4	5,07	M20	140	110
125mm	235	136	25	190	8	22	4	5,07	M20	140	110
140mm	270	158	28	220	8	26	4	7,35	M24	160	120
160mm	300	190	30	250	8	26	6	8,98	M24	180	130
180mm	300	190	30	250	8	26	6	8,98	M24	180	130
200mm	360	237	28	310	12	26	6	11,30	M24	180	130
225mm	360	237	28	310	12	26	6	11,30	M24	200	140
250mm	425	279	30	370	12	26	8	17,60	M24	200	140
280mm	425	292	30	370	12	26	8	16,20	M24	200	140
315mm	485	330	32	430	16	26	8	22,80	M24	220	160
355mm	555	376	35	490	16	33	8	32,30	M30	250	170
400mm	620	430	40	550	16	33	8	45,00	M30	270	190
450mm	670	476	45	600	20	33	8	55,70	M30	280	200
500mm	730	533	50	660	20	33	8	70,10	M30	300	210

FLANGES

Carbon steel hot dipped galvanised



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FLANGE DIMENSIONS									FASTENERS		
									PSA RECOMMENDATION		
FLANGE SIZE	OD	ID	THK	PCD	NO.	HOLES	e x 45	KG/PC	D2	P-P	P-S
ASA 150#											
32mm	107,9	45	10	79,4	4	15,9	4	0,53	M12	75	55
40mm	117,5	51	10	88,9	4	15,9	4	0,63	M12	75	65
50mm	127	63	10	98,4	4	15,9	4	0,69	M16	80	60
63mm	152,4	78	12	120,6	4	19	4	1,16	M16	80	65
75mm	177,8	92	12	139,7	4	19	4	1,61	M16	85	65
90mm	190,5	103	12	152,4	4	19	4	1,80	M16	100	70
110mm	228,6	136	15	190,5	8	19	4	2,86	M16	120	80
125mm	228,6	136	15	190,5	8	19	4	2,86	M16	120	80
140mm	254	158	16	215,9	8	22,2	6	3,52	M20	130	90
160mm	279,4	190	20	241,3	8	22,2	6	4,69	M20	150	110
180mm	279,4	190	20	241,3	8	22,2	6	4,69	M20	150	110
200mm	342,9	237	20	298,4	8	22,2	6	7,10	M20	150	110
225mm	342,9	237	20	298,4	8	22,2	6	7,10	M20	170	120
250mm	406,4	279	25	361,9	12	25,4	8	12,30	M24	190	130
280mm	406,4	292	25	361,9	12	25,4	8	11,20	M24	190	130
315mm	482,6	330	28	431,8	12	25,4	8	20,10	M24	220	150
355mm	533,4	376	30	476,2	12	28,6	8	24,70	M24	230	160
400mm	596,9	430	30	539,8	16	28,6	8	29,30	M24	240	160
450mm	635	476	35	577,8	16	31,9	8	34,70	M30	260	180
500mm	698,5	533	38	635	20	31,9	8	43,10	M30	270	190
560mm	812,8	592	40	749,3	20	34,9	8	70,60	M32	280	190
630mm	812,8	645	40	749,3	20	34,9	8	54,40	M32	280	190

FLANGE DIMENSIONS							FASTENERS	
FLANGE SIZE	OD	THK	PCD	NO.	HOLES	KG/PC	D2	P-S
SANS 1123 - T1000 BLANK								
63mm	165	12	125	4	18	1,92	M16	80
75mm	185	12	145	4	18	2,44	M16	80
90mm	200	14	160	8	18	3,23	M16	90
110mm	225	14	180	8	18	3,96	M16	100
125mm	225	14	180	8	18	3,96	M16	100
140mm	250	16	210	8	18	5,92	M16	100
160mm	285	18	240	8	22	8,59	M20	110
180mm	285	18	240	8	22	8,59	M20	110
200mm	340	18	295	8	22	12,41	M20	110
225mm	340	18	295	8	22	12,41	M20	120
250mm	395	20	350	12	22	18,60	M20	130
280mm	395	20	350	12	22	18,60	M20	120
315mm	445	22	400	12	22	26,10	M20	140
355mm	505	25	460	16	22	38,20	M20	150
400mm	565	25	515	16	26	47,60	M24	160
450mm	615	30	565	20	26	67,50	M24	170
500mm	670	32	620	20	26	86,00	M24	180
560mm	730	35	675	20	26	112,20	M24	190
630mm - 725 PCD	780	38	725	20	26	139,50	M24	190
630mm - 780 PCD	835	38	780	20	26	160,30	M24	190

FLANGE DIMENSIONS							FASTENERS	
FLANGE SIZE	OD	THK	PCD	NO.	HOLES	KG/PC	D2	P-S
SANS 1123 - T1600 BLANK								
50mm	150	10	110	4	18	1,31	M16	75
63mm	165	12	125	4	18	1,92	M16	80
75mm	185	12	145	4	18	2,44	M16	80
90mm	200	14	160	8	18	3,23	M16	90
110mm	220	14	180	8	18	3,60	M16	100
125mm	220	14	180	8	18	3,60	M16	100
140mm	250	16	210	8	18	5,92	M16	100
160mm	285	18	240	8	22	8,60	M20	110
180mm	285	18	240	8	22	8,60	M20	110
200mm	340	22	295	12	22	14,90	M20	120
225mm	340	22	295	12	22	14,90	M20	130
250mm	405	25	355	12	26	24,10	M24	140
280mm	405	25	355	12	26	24,10	M24	140
315mm	460	28	410	12	26	35,20	M24	160
355mm	520	30	470	16	26	48,10	M24	170
400mm	580	35	525	16	26	70,40	M24	180
450mm	640	40	585	20	26	97,80	M24	190
500mm	715	40	650	20	33	120,80	M30	200
560mm	775	40	710	20	33	142,90	M30	200
630mm	840	50	770	20	33	211,00	M30	220

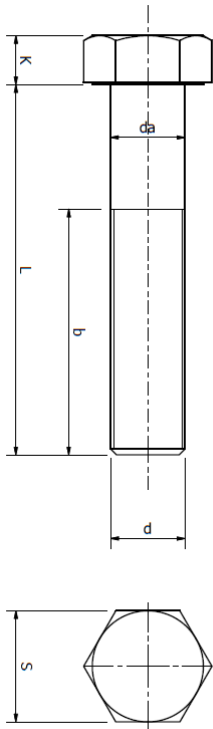


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FASTENERS

Carbon steel hot dipped galvanised

HEX BOLT DIN931



SIZE	d	b	da	K	L	s
M12						
M12 x 65mm	11.7-11.96	30	11.73-12	7.32-7.68	64.4-65.6	18.67-19
M12 x 75mm	11.7-11.96	30	11.73-12	7.32-7.68	74.4-75.6	18.67-19
M16						
M16 x 60mm	15.68-15.96	38	15.73-16	9.82-10.18	59.4-60.6	23.67-24
M16 x 65mm	15.68-15.96	38	15.73-16	9.82-10.18	64.4-65.6	23.67-24
M16 x 70mm	15.68-15.96	38	15.73-16	9.82-10.18	69.4-70.6	23.67-24
M16 x 75mm	15.68-15.96	38	15.73-16	9.82-10.18	74.4-75.6	23.67-24
M16 x 80mm	15.68-15.96	38	15.73-16	9.82-10.18	79.4-80.6	23.67-24
M16 x 85mm	15.68-15.96	38	15.73-16	9.82-10.18	84.3-85.7	23.67-24
M16 x 90mm	15.68-15.96	38	15.73-16	9.82-10.18	89.3-90.7	23.67-24
M16 x 100mm	15.68-15.96	38	15.73-16	9.82-10.18	99.3-100.7	23.67-24
M16 x 110mm	15.68-15.96	38	15.73-16	9.82-10.18	109.3-110.7	23.67-24
M16 x 120mm	15.68-15.96	38	15.73-16	9.82-10.18	119.3-120.7	23.67-24
M16 x 130mm	15.68-15.96	44	15.73-16	9.82-10.18	129.2-130.8	23.67-24
M16 x 140mm	15.68-15.96	44	15.73-16	9.82-10.18	139.2-140.8	23.67-24
M20						
M20 x 110mm	19.62-19.96	46	19.67-20	12.28-12.72	109.3-110.7	29.67-30
M20 x 120mm	19.62-19.96	46	19.67-20	12.28-12.72	119.3-120.7	29.67-30
M20 x 130mm	19.62-19.96	52	19.67-20	12.28-12.72	129.2-130.8	29.67-30
M20 x 140mm	19.62-19.96	52	19.67-20	12.28-12.72	139.2-140.8	29.67-30
M20 x 150mm	19.62-19.96	52	19.67-20	12.28-12.72	149.2-150.8	29.67-30
M20 x 160mm	19.62-19.96	52	19.67-20	12.28-12.72	159.2-160.8	29.67-30
M20 x 170mm	19.62-19.96	52	19.67-20	12.28-12.72	159.2-170.8	29.67-30
M20 x 180mm	19.62-19.96	52	19.67-20	12.28-12.72	179.2-180.8	29.67-30
M20 x 190mm	19.62-19.96	52	19.67-20	12.28-12.72	189.08-190.92	29.67-30
M20 x 200mm	19.62-19.96	52	19.67-20	12.28-12.72	199.08-200.92	29.67-30
M24						
M24 x 130mm	23.58-23.95	60	23.67-24	14.78-15.22	129.2-130.8	35-36
M24 x 140mm	23.58-23.95	60	23.67-24	14.78-15.22	139.2-140.8	35-36
M24 x 150mm	23.58-23.95	60	23.67-24	14.78-15.22	149.2-150.8	35-36
M24 x 160mm	23.58-23.95	60	23.67-24	14.78-15.22	158-162	35-36
M24 x 170mm	23.58-23.95	60	23.67-24	14.78-15.22	168-172	35-36
M24 x 180mm	23.58-23.95	60	23.67-24	14.78-15.22	178-182	35-36
M24 x 190mm	23.58-23.95	60	23.67-24	14.78-15.22	187.7-192.3	35-36
M24 x 200mm	23.58-23.95	60	23.67-24	14.78-15.22	197.7-202.3	35-36
M24 x 210mm	23.58-23.95	73	23.67-24	14.78-15.22	207.7-212.3	35-36
M24 x 220mm	23.58-23.95	73	23.67-24	14.78-15.22	217.7-222.3	35-36
M24 x 230mm	23.58-23.95	73	23.67-24	14.78-15.22	227.7-232.3	35-36
M24 x 240mm	23.58-23.95	73	23.67-24	14.78-15.22	237.7-242.3	35-36
M24 x 250mm	23.58-23.95	73	23.67-24	14.78-15.22	247.7-252.3	35-36
M24 x 260mm	23.58-23.95	73	23.67-24	14.78-15.22	257.4-262.6	35-36
M24 x 280mm	23.58-23.95	73	23.67-24	14.78-15.22	277.4-282.6	35-36
M30						
M30 x 190mm	29.52-29.95	72	29.48-30	18.28-19.12	187.7-192.3	45-46
M30 x 200mm	29.52-29.95	72	29.48-30	18.28-19.12	197.7-202.3	45-46
M30 x 220mm	29.52-29.95	85	29.48-30	18.28-19.12	217.7-222.3	45-46
M30 x 240mm	29.52-29.95	85	29.48-30	18.28-19.12	237.7-242.3	45-46
M30 x 250mm	29.52-29.95	85	29.48-30	18.28-19.12	247.3-252.3	45-46
M30 x 260mm	29.52-29.95	85	29.48-30	18.28-19.12	257.4-262.6	45-46
M30 x 270mm	29.52-29.95	85	29.48-30	18.28-19.12	267.4-272.6	45-46
M30 x 280mm	29.52-29.95	85	29.48-30	18.28-19.12	277.4-282.6	45-46
M30 x 290mm	29.52-29.95	85	29.48-30	18.28-19.12	287.4-292.6	45-46
M30 x 300mm	29.52-29.95	85	29.48-30	18.28-19.12	297.4-302.6	45-46
M36						
M36 x 270mm	35.46-35.94	97	35.38-36	22.08-22.92	267.4-272.6	53.8-55
M36 x 290mm	35.46-35.94	97	35.38-36	22.08-22.92	287.4-292.6	53.8-55
M36 x 310mm	35.46-35.94	97	35.38-36	22.08-22.92	307.4-312.6	53.8-55

FASTENERS

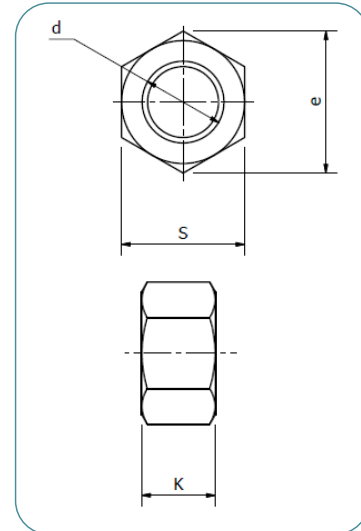
Carbon steel hot dipped galvanised



PIPESTAR
AFRICA

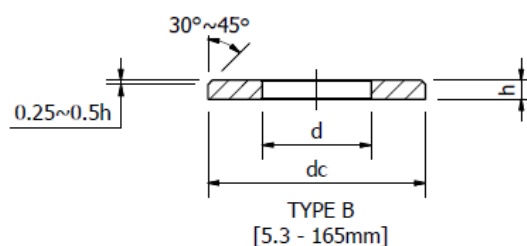
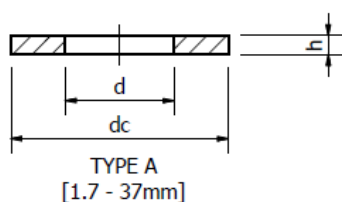
HEX NUT DIN 934

d	S	K	e
M12	Max 19 Min 18.67	Max 10 Min 9.64	Min 21.1
M16	Max 24 Min 23.67	Max 13 Min 12.3	Min 26.75
M20	Max 30 Min 29.16	Max 16 Min 14.9	Min 32.95
M24	Max 36 Min 35	Max 19 Min 17.7	Min 39.55
M30	Max 46 Min 45	Max 24 Min 22.7	Min 50.85
M36	Max 55 Min 53.8	Max 29 Min 27.4	Min 60.79



FLAT WASHERS DIN125A

SIZE	d	dc	h
M12	Max 13.27 Min 13	Max 24 Min 23.48	Max 2.7 Min 2.3
M16	Max 17.27 Min 17	Max 30 Min 29.48	Max 3.3 Min 2.7
M20	Max 21.33 Min 21	Max 37 Min 36.38	Max 3.3 Min 2.7
M24	Max 25.33 Min 25	Max 44 Min 43.38	Max 4.3 Min 3.7
M30	Max 31.39 Min 31	Max 56 Min 55.28	Max 4.3 Min 3.7
M36	Max 37.62 Min 37	Max 66 Min 64.8	Max 5.6 Min 4.4





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