



Unbrako Socket Head Shoulder Screws replace costly special parts such as shafts, pivots, pins, guides, linkages, and trunnion mountings. They're manufactured to tolerances that make them stronger and last longer than other shoulder screws and are used to operate stripper plates and a wide variety of tool and die work.

PRODUCT ATTRIBUTES

Controlled root radius doubles fatigue life of threads.

Rolled threads provide extra strength and prevents stripping.

Neck allows for assembly with no chamfering or additional hole preparation of the mounting part.

WHERE YOU WILL FIND OPPORTUNITY

Machine Building	Robotics & Automation
Stamping Presses	Mold Making
Tools Assembly	Aerospace
Heavy Machinery	Military
Tool and Die Work	Shafts/Pivots
Holding Pulley Gears	Cams and Cam Followers

THIS PRODUCT IS OFTEN CALLED...

Shoulder Bolt	Shoulder Screw
Hex Socket Shoulder Bolt	Stripper Bolt
Stop Bolt	



ADDITIONAL UNBRAKO SOCKET PRODUCTS

- Socket Head Cap Screws
- Socket Low Head Cap Screws
- Socket Head Shoulder Screws
- Button Head Socket Screws
- Flat Head Countersunk Socket Screws
- Flange Button Head Socket Screws
- Hardened Ground Machine Dowel Pins
- Socket Set Screws
- Hexagon Wrenches
- Taper Pressure Plugs
- Pull Out Dowel Pins

AVAILABLE VALUE ADDED SERVICES

Secondary & rework services including drilling and center drilling

Custom plating services available

BACKED BY THE EARNEST
Service
 GUARANTEE

**The right part.
 The right quantity.
 On-time.
 Everytime.**

UNBRAKO SOCKET HEAD SHOULDER SCREWS - INCH & METRIC

Unbrako Socket Head Shoulder Screws are manufactured in accordance with the latest revision of the following industry standards:

INCH ASME B18.3 / BS 2470

METRIC ISO 7379
ASME B18.3.3M
BS 4168-7

UNBRAKO SOCKET HEAD SHOULDER SCREW - INCH

Chemical Composition:

CARBON (C)		PHOSPHORUS (P)	SULFUR (S)
Max	Min	Max	Max
0.30	0.48	0.035	0.040

Alloy:

CONTAINS ONE OR MORE OF THE FOLLOWING ALLOYS

Mn, Cr, Mo, Ni, V

Hardness:

ROCKWELL HARDNESS

HRC 39/43

Tensile Strength:

160,000 psi min

Sheer Strength:

108,000 psi min

Torque Tightening - Inch

SHOULDER DIAMETER	THREAD	INSTALLATION TORQUE
Nominal	Nominal	In-lb
1/4	#10-24	4
5/16	1/4-20	9
3/8	5/16-18	19
1/2	3/8-16	32
5/8	1/2-13	83
3/4	5/8-11	165
1	3/4-10	291
1-1/4	7/8-9	468
1-1/2	1 1/8-7	1000
1-3/4	1 1/4-7	1333
2	1 1/2-6	2500

THREADS

Thread acceptance per ASME B1.3 System 21

INCH Thread requirements per ASME B1.1
Class 3A

METRIC Thread requirements per ISO 261
Class 5g6g

PLATING

Black Oxide (thermal black oxide) - Heads and Threads
Custom coatings available

UNBRAKO SOCKET HEAD SHOULDER SCREW - METRIC

Chemical Composition:

CARBON (C)		PHOSPHORUS (P)	SULFUR (S)
Min	Max	Max	Max
0.20	0.50	0.035	0.035

Alloy:

CONTAINS ONE OR MORE OF THE FOLLOWING ALLOYS

Mn, Cr, Mo, Ni, V

Hardness:

ROCKWELL HARDNESS

HRC 39/43

Tensile Strength:

1100 MPa min

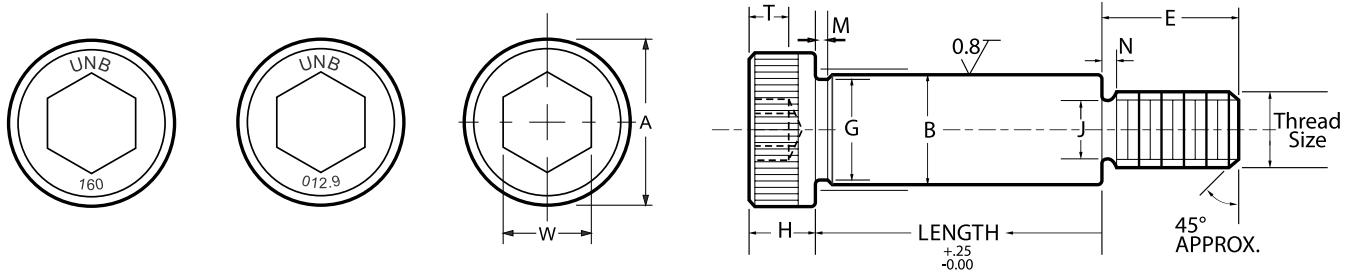
Sheer Strength:

730 MPa

Torque Tightening - Metric

SHOULDER DIAMETER	THREAD	INSTALLATION TORQUE	
Nominal	Nominal	Nm	ft-lb
6	M5-0.8	7	5
8	M6-1.0	12	9
10	M8-1.25	29	21
12	M10-1.5	57	42
16	M12-1.75	100	74
20	M16-2.0	240	177
24	M20-2.5	470	347

*The specifications shown on this sheet are not intended to be used in the production of parts. Earnest Machine is not responsible or liable in any manner for any production errors and we certify the information present on this specification sheet is correct to the best of our knowledge.

UNBRAKO SOCKET HEAD SHOULDER SCREWS - INCH & METRIC DIMENSIONS

INCH DIMENSIONS

BODY SIZE	THREADS SIZE	THREAD PITCH	HEAD DIAMETER (A)	HEX SOCKET SIZE (W)	HEAD HEIGHT (H)	SOCKET DEPTH (T)	SHOULDER DIAMETER (B)		THREAD NECK DIAMETER (J)	THREAD NECK WIDTH (N)	SHOULDER NECK DIAMETER (G)	SHOULDER NECK WIDTH (M)	THREAD LENGTH (E)
NOM.			MAX	MAX	MAX	MIN	MAX	MIN	MAX	MAX	MAX	MAX	MAX
1/4	#10	24	0.375	0.375	0.188	0.094	0.248	0.246	0.142	0.083	0.227	0.093	0.375
5/16	1/4	20	0.438	0.156	0.219	0.117	0.311	0.309	0.193	0.100	0.289	0.093	0.438
3/8	5/16	18	0.562	0.188	0.250	0.141	0.373	0.371	0.249	0.111	0.352	0.093	0.500
1/2	3/8	16	0.750	0.250	0.312	0.188	0.498	0.496	0.304	0.125	0.352	0.093	0.625
5/8	1/2	13	0.750	0.312	0.375	0.234	0.623	0.621	0.414	0.154	0.602	0.093	0.750
3/4	5/8	11	1.000	0.375	0.500	0.281	0.748	0.746	0.521	0.182	0.727	0.093	0.875
1	3/4	10	1.312	0.500	0.625	0.375	0.998	0.996	0.638	0.200	0.977	0.125	1.000
1 1/4	7/8	9	1.750	0.625	0.750	0.469	1.248	1.246	0.750	0.222	1.227	0.125	1.125
1 1/2	1 1/8	7	2.125	0.875	1.000	0.656	1.498	1.496	0.964	0.286	1.478	0.125	1.500
1 3/4	1 1/4	7	2.375	1.000	1.125	0.750	1.748	1.746	1.089	0.286	1.728	0.125	1.750
2	1 1/2	6	2.750	1.250	1.250	0.937	1.998	1.996	1.307	0.333	1.978	0.125	2.000

METRIC DIMENSIONS

BODY SIZE	THREADS SIZE	THREAD PITCH	HEAD DIAMETER (A)	HEX SOCKET SIZE (W)	HEAD HEIGHT (H)	SOCKET DEPTH (T)	SHOULDER DIAMETER (B)		THREAD NECK DIAMETER (J)	THREAD NECK WIDTH (N)	SHOULDER NECK DIAMETER (G)	SHOULDER NECK WIDTH (M)	THREAD LENGTH (E)
NOM.			MAX	MAX	MAX	MIN	MAX	MIN	MAX	MAX	MAX	MAX	MAX
6	M5	0.80	10.00	3	4.50	2.4	6	5.96	5.62	2.00	3.84	1.85	9.75
8	M6	1.00	13.00	4	5.50	3.3	8	7.95	7.62	2.50	4.56	1.85	11.25
10	M8	1.25	16.00	5	7.00	4.2	10	9.95	9.62	3.00	6.23	1.85	13.25
12	M10	1.50	18.00	6	8.00	4.9	12	11.95	11.62	3.50	7.89	1.85	16.40
16	M12	1.75	24.00	8	10.00	6.6	16	15.95	15.62	4.00	9.54	1.85	18.40
20	M16	2.00	30.00	10	14.00	8.8	20	19.95	19.62	4.50	13.20	2.50	22.40
24	M20	2.50	36.00	12	16.00	10.0	24	23.95	23.62	5.60	16.54	2.65	27.40

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Unbrako Socket Head Shoulder Screws - Inch

SIZE	THREAD	PITCH	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
1/4x3/8	Patrial	Coarse	Alloy Steel	Black Oxide	103614	968015
1/4x1/2	Patrial	Coarse	Alloy Steel	Black Oxide	115475	968009
1/4x5/8	Patrial	Coarse	Alloy Steel	Black Oxide	115729	968018
1/4x3/4	Patrial	Coarse	Alloy Steel	Black Oxide	115859	968012
1/4x1	Patrial	Coarse	Alloy Steel	Black Oxide	102352	968000
1/4x1-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	111469	968003
1/4x1-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	117980	968006

5/16x3/8	Patrial	Coarse	Alloy Steel	Black Oxide	118045	968042
5/16x1/2	Patrial	Coarse	Alloy Steel	Black Oxide	114047	968036
5/16x5/8	Patrial	Coarse	Alloy Steel	Black Oxide	117628	968045
5/16x3/4	Patrial	Coarse	Alloy Steel	Black Oxide	106137	968039
5/16x1	Patrial	Coarse	Alloy Steel	Black Oxide	106201	968021
5/16x1-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	106266	968024
5/16x1-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	106331	968027
5/16x1-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	106395	968030
5/16x2	Patrial	Coarse	Alloy Steel	Black Oxide	106459	968033

3/8x3/8	Patrial	Coarse	Alloy Steel	Black Oxide	106524	968093
3/8x1/2	Patrial	Coarse	Alloy Steel	Black Oxide	111791	968087
3/8x5/8	Patrial	Coarse	Alloy Steel	Black Oxide	116768	968096
3/8x3/4	Patrial	Coarse	Alloy Steel	Black Oxide	116800	968090
3/8x1	Patrial	Coarse	Alloy Steel	Black Oxide	110993	968048
3/8x1-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	111025	968051
3/8x1-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	118465	968054
3/8x1-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	114133	968057
3/8x2	Patrial	Coarse	Alloy Steel	Black Oxide	114166	968060
3/8x2-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	114200	968063
3/8x2-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	114233	968066
3/8x2-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	119970	968069
3/8x3	Patrial	Coarse	Alloy Steel	Black Oxide	120003	968072
3/8x3-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	120036	968075
3/8x3-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	120069	968078
3/8x3-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	120101	968081
3/8x4	Patrial	Coarse	Alloy Steel	Black Oxide	118103	968084



Earnest

PRODUCT SPECIFICATION SHEET

Unbrako Socket Head Shoulder Screws - Inch

SIZE	THREAD	PITCH	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
1/2x1/2	Patrial	Coarse	Alloy Steel	Black Oxide	119560	968156
1/2x5/8	Patrial	Coarse	Alloy Steel	Black Oxide	107602	968162
1/2x3/4	Patrial	Coarse	Alloy Steel	Black Oxide	107634	968159
1/2x 1	Patrial	Coarse	Alloy Steel	Black Oxide	113288	968099
1/2x1-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	106400	968102
1/2x1-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	106432	968105
1/2x1-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	106465	968108
1/2x 2	Patrial	Coarse	Alloy Steel	Black Oxide	106497	968111
1/2x2-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	113444	968114
1/2x2-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	113476	968117
1/2x2-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	113509	968120
1/2x 3	Patrial	Coarse	Alloy Steel	Black Oxide	102884	968123
1/2x3-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	111946	968126
1/2x3-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	111978	968129
1/2x3-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	112011	968132
1/2x 4	Patrial	Coarse	Alloy Steel	Black Oxide	108444	968135
1/2x4-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	108477	968138
1/2x4-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	108510	968141
1/2x4-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	108544	968144
1/2x 5	Patrial	Coarse	Alloy Steel	Black Oxide	102921	968147
1/2x5-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	116309	968150
1/2x6	Patrial	Coarse	Alloy Steel	Black Oxide	116311	968153

5/8x1	Patrial	Coarse	Alloy Steel	Black Oxide	115741	968165
5/8x1-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	102954	968168
5/8x1-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	107083	968171
5/8x1-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	107114	968174
5/8x2	Patrial	Coarse	Alloy Steel	Black Oxide	107147	968177
5/8x2-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	104292	968180
5/8x2-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	104359	968183
5/8x2-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	110484	968186
5/8x3	Patrial	Coarse	Alloy Steel	Black Oxide	109843	968189
5/8x3-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	103662	968192
5/8x3-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	103728	968195
5/8x3-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	117089	968198
5/8x4	Patrial	Coarse	Alloy Steel	Black Oxide	119174	968201
5/8x4-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	114672	968204
5/8x4-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	114737	968207
5/8x4-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	119201	968210
5/8x5	Patrial	Coarse	Alloy Steel	Black Oxide	106617	968213
5/8x5-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	119573	968216
5/8x6	Patrial	Coarse	Alloy Steel	Black Oxide	119605	968219
5/8x6-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	116312	968222
5/8x7	Patrial	Coarse	Alloy Steel	Black Oxide	116313	968225

Inquire today at **800.327.6378** or visit **EarnestMachine.com**

Unbrako Socket Head Shoulder Screws - Inch

SIZE	THREAD	PITCH	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
3/4x3/4	Patrial	Coarse	Alloy Steel	Black Oxide	102298	968291
3/4x1	Patrial	Coarse	Alloy Steel	Black Oxide	102365	968228
3/4x1-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	102397	968231
3/4x1-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	108998	968234
3/4x1-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	125809	968237
3/4x2	Patrial	Coarse	Alloy Steel	Black Oxide	113145	968240
3/4x2-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	107658	968243
3/4x2-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	107690	968246
3/4x2-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	107722	968249
3/4x3	Patrial	Coarse	Alloy Steel	Black Oxide	113244	968252
3/4x3-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	107461	968255
3/4x3-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	107493	968258
3/4x3-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	107525	968261
3/4x4	Patrial	Coarse	Alloy Steel	Black Oxide	107557	968264
3/4x4-1/4	Patrial	Coarse	Alloy Steel	Black Oxide	107590	968267
3/4x4-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	107622	968270
3/4x4-3/4	Patrial	Coarse	Alloy Steel	Black Oxide	113276	968273
3/4x5	Patrial	Coarse	Alloy Steel	Black Oxide	113308	968276
3/4x5-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	106420	968279
3/4x6	Patrial	Coarse	Alloy Steel	Black Oxide	106452	968282
3/4x6-1/2	Patrial	Coarse	Alloy Steel	Black Oxide	117921	968285
3/4x7	Patrial	Coarse	Alloy Steel	Black Oxide	117938	968288

Unbrako Socket Head Shoulder Screws - Metric

SIZE	THREAD	PITCH	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
6x10	Patrial	Coarse	Alloy Steel	Black Oxide	105364	968432
6x12	Patrial	Coarse	Alloy Steel	Black Oxide	105365	968435
6x15	Patrial	Coarse	Alloy Steel	Black Oxide	401484	968438
6x16	Patrial	Coarse	Alloy Steel	Black Oxide	105366	968441
6x20	Patrial	Coarse	Alloy Steel	Black Oxide	105368	968444
6x25	Patrial	Coarse	Alloy Steel	Black Oxide	105370	968447
6x30	Patrial	Coarse	Alloy Steel	Black Oxide	105372	968450
6x40	Patrial	Coarse	Alloy Steel	Black Oxide	105373	968453

8x12	Patrial	Coarse	Alloy Steel	Black Oxide	105375	968456
8x15	Patrial	Coarse	Alloy Steel	Black Oxide	401486	968459
8x16	Patrial	Coarse	Alloy Steel	Black Oxide	105377	968462
8x20	Patrial	Coarse	Alloy Steel	Black Oxide	105379	968465
8x25	Patrial	Coarse	Alloy Steel	Black Oxide	105380	968468
8x30	Patrial	Coarse	Alloy Steel	Black Oxide	105381	968471
8x40	Patrial	Coarse	Alloy Steel	Black Oxide	105383	968474
8x50	Patrial	Coarse	Alloy Steel	Black Oxide	105386	968477

Unbrako Socket Head Shoulder Screws - Metric

SIZE	THREAD	PITCH	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
10x15	Patrial	Coarse	Alloy Steel	Black Oxide	401487	968294
10x16	Patrial	Coarse	Alloy Steel	Black Oxide	105388	968297
10x20	Patrial	Coarse	Alloy Steel	Black Oxide	105390	968300
10x25	Patrial	Coarse	Alloy Steel	Black Oxide	105392	968303
10x30	Patrial	Coarse	Alloy Steel	Black Oxide	105393	968306
10x40	Patrial	Coarse	Alloy Steel	Black Oxide	105394	968309
10x50	Patrial	Coarse	Alloy Steel	Black Oxide	105395	968312
10x60	Patrial	Coarse	Alloy Steel	Black Oxide	105396	968315
10x70	Patrial	Coarse	Alloy Steel	Black Oxide	105402	968318
10x80	Patrial	Coarse	Alloy Steel	Black Oxide	106422	968321

12x15	Patrial	Coarse	Alloy Steel	Black Oxide	401485	968324
12x16	Patrial	Coarse	Alloy Steel	Black Oxide	105404	968327
12x20	Patrial	Coarse	Alloy Steel	Black Oxide	105406	968330
12x25	Patrial	Coarse	Alloy Steel	Black Oxide	105407	968333
12x30	Patrial	Coarse	Alloy Steel	Black Oxide	105410	968336
12x40	Patrial	Coarse	Alloy Steel	Black Oxide	105411	968339
12x50	Patrial	Coarse	Alloy Steel	Black Oxide	105412	968342
12x60	Patrial	Coarse	Alloy Steel	Black Oxide	105416	968345
12x70	Patrial	Coarse	Alloy Steel	Black Oxide	105417	968348
12x80	Patrial	Coarse	Alloy Steel	Black Oxide	105420	968351
12x90	Patrial	Coarse	Alloy Steel	Black Oxide	105427	968354
12x100	Patrial	Coarse	Alloy Steel	Black Oxide	105433	968357

16x30	Patrial	Coarse	Alloy Steel	Black Oxide	105434	968360
16x40	Patrial	Coarse	Alloy Steel	Black Oxide	105435	968363
16x50	Patrial	Coarse	Alloy Steel	Black Oxide	105436	968366
16x60	Patrial	Coarse	Alloy Steel	Black Oxide	105437	968369
16x70	Patrial	Coarse	Alloy Steel	Black Oxide	105438	968372
16x80	Patrial	Coarse	Alloy Steel	Black Oxide	105440	968375
16x90	Patrial	Coarse	Alloy Steel	Black Oxide	106343	968378
16x100	Patrial	Coarse	Alloy Steel	Black Oxide	106344	968381
16x120	Patrial	Coarse	Alloy Steel	Black Oxide	106346	968384

20x40	Patrial	Coarse	Alloy Steel	Black Oxide	105441	968387
20x50	Patrial	Coarse	Alloy Steel	Black Oxide	105442	968390
20x60	Patrial	Coarse	Alloy Steel	Black Oxide	105444	968393
20x70	Patrial	Coarse	Alloy Steel	Black Oxide	105448	968396
20x80	Patrial	Coarse	Alloy Steel	Black Oxide	105449	968399
20x90	Patrial	Coarse	Alloy Steel	Black Oxide	105450	968402
20x100	Patrial	Coarse	Alloy Steel	Black Oxide	106347	968405
20x120	Patrial	Coarse	Alloy Steel	Black Oxide	106348	968408

Unbrako Socket Head Shoulder Screws - Metric

SIZE	THREAD	PITCH	MATERIAL	FINISH	UNBRAKO PART #	EARNEST PART #
24x50	Patril	Coarse	Alloy Steel	Black Oxide	401488	968411
24x60	Patril	Coarse	Alloy Steel	Black Oxide	401489	968414
24x70	Patril	Coarse	Alloy Steel	Black Oxide	401490	968417
24x80	Patril	Coarse	Alloy Steel	Black Oxide	401491	968420
24x90	Patril	Coarse	Alloy Steel	Black Oxide	401492	968423
24x100	Patril	Coarse	Alloy Steel	Black Oxide	401493	968426
24x120	Patril	Coarse	Alloy Steel	Black Oxide	401494	968429