



Stainless Steel Bars



**BHANSALI**  
BRIGHT BARS PVT. LTD.



Grinding Machines

## Stainless Steel Bright Bars (Cold Drawn)

### Applications :

Machined Components, Pump Shafts, Valves, Fasteners, Machine Tools, Dairy Equipments, Surgical & Medical Parts, Threaded Bars, Studs, Bolts, Pins, Hinges and Handles.

Condition	Cold Drawn & Polished	Cold Drawn, Centreless Ground & Polished	Cold Drawn, Centreless Ground and Polished (Strain Hardened)
Grades	201, 201Cu, 202, 202Cu, 303, 304, 304L, 310, 316, 316L, 321, 409Ti, 410, 420, 420B, 416, 430, 431, 430F, 630 (17-4 PH) & others		304, 304L, 316, 316L
Diameter (Size)	2mm to 5mm 1/8" to 3/16"	6mm to 25mm 1/4" to 1"	10mm to 40mm 3/8" to 1-1/2"
Diameter Tolerance	h9 (Din 671), h11 ASTM A 484	h9 (Din 671) ASTM A 484	h9 (Din 671), h11 ASTM A 484
Length	3 upto 6 meter 12 upto 22 feet	3 upto 6 meter 12 upto 22 feet	3 upto 6 meter 12 upto 22 feet
Length Tolerance	-0/+200mm or +100mm or +50mm -0"/+1 feet or +4" or 2"	-0/+200mm or +100mm or +50mm -0"/+1 feet or +4" or 2"	-0/+200mm  -0"/+1 feet



Combined Drawing Machines

- We can give Chamfering of 30 or 45 degrees on one or both the ends with our dedicated chamfering machine.
- For Strain-Hardened Bars, we can supply in B8(304) and B8M(316) in Class1 and Class2.



Peeling Machine

## Stainless Steel Bright Bars (Peeled/Turned)

### Applications :

Machined Components, Fittings, Pump Shafts, Valves, Seals, Spindles, Fasteners, Machine Tools, Dairy Equipments, Threaded Bars, Studs, Shackles, Swivels, Screw Stoppers, Parts of Printing Press.

Condition	Peeled, Centreless Ground & Polished	Peeled & Polished	Peeled (Rough Turned)	Forged, Rough Turned
Grades	201, 201Cu, 202, 204Cu, 303, 304, 304L, 310, 316, 316L, 321, 409Ti, 410, 420, 420B, 416, 430, 431, 430F, 630 (17-4 PH) & others			303, 304, 304L, 316, 316L, 410, 416, 420, 431
Diameter (Size)	25mm to 85mm 1" to 3-1/4"	85mm to 140mm 3-1/4" to 4-3/4"	25mm to 140mm 1" to 5-1/2"	150mm to 400mm 6" to 16"
Diameter Tolerance	h9 (Din 671) (ASTM A 484)	h11	K12/K13 (Din 1013)	-0mm/+3mm (-0"/ +0.12")
Length	3 upto 7 meter 12 upto 22 feet	3 upto 7 meter 12 upto 22 feet	3 upto 7 meter 12 upto 22 feet	3 upto 6 meter 12 upto 20 feet
Length Tolerance	-0/+200mm or +100mm or +50mm -0"/+1 feet or +4" or 2"	-0/+200mm or +100mm or +50mm -0"/+1 feet or +4" or 2"	-0/+1000mm or 500mm -0"/+3 feet or +2 feet	-0/+2 meter- -0/+6 feet



Grinding Machine



Hex & Square Polishing Machine

## Stainless Steel Hexagon & Square Bars

**Applications :** Ball Valves, Needle Valves, Filter Valves, Connectors, Couplings, Plugs, Hose Ends, Manifolds, Nuts, Bolts

Type	Cold Drawn and Polished (Squares)	Cold Drawn and Polished (Hexagons)
Grades	304, 304L, 316, 316L	304, 304L, 316, 316L
Diameter (Size)	5mm to 40mm (1/4" to 1-1/2")	10mm to 40mm (3/8" to 1-1/2")
Diameter Tolerances	h11 (ASTM A 484)	h11 (ASTM A 484)
Length	3/4/6 meter (12/14ft/20feet)	3/4/6 meter (12/14ft/20feet)
Length Tolerance	-0/+500mm (-0"/+2 feet)	-0/+500mm (-0"/+2 feet)



## Stainless Steel Threaded Bars

**Applications :** Ground Anchors, Resin Anchors, Rock Bolts, Tie Bars, Roof and Hanger Bolts.



Thread Rolling Machine

Condition	Cold Drawn, Threading
Grades	304, 304L, 316, 316L
Diameter (Size)	M8 to M40 (5/16" to 1-1/2")
Threading Method	Thread Rolling
Thread Condition	Fully Threaded
Thread Type	ANSI B1.1 Class 2A Fit
Length	2/3/4 meter (6/12ft)
Length Tolerance	-0 / +200 mm (-0"/+ 8" )



## Stainless Steel Wire Rods – Hot Rolled, Annealed & Pickled

**Applications :** Bright Bars, Wires, Fasteners, Chains, Threaded Rods, Cutlery, Welding Products

<b>Grades</b>	303, 304, 304L, 316, 316L, 410, 416, 420, 430F, 430L
<b>Diameter (Size)</b>	5.5mm to 26mm (0.217" to 1")
<b>Tolerance</b>	+/- 0.3 mm (+/- 0.011")
<b>Surface Defect</b>	1% of Diameter
<b>Coil Weight</b>	500-1000 kgs
<b>Packing</b>	HDPE Wrapped coils 500 to 1000 kgs
<b>Heat Treatment</b>	Solution Annealing for Austenitic Grades, Normal Annealing for Martensitic Grades
<b>Surface Treatment</b>	Hot Rolled or Hot Rolled Annealed and Pickled (with or without coating)



## Stainless Steel Black Bars–Round

**Applications :** Forged Flanges, Forged Fittings, Pump Shafts, Spindles, Machine Tools, Valves, Seals, Dairy Equipments, Parts of Printing Press

Condition	Hot Rolled, Decoiled from Coils	Hot Rolled	Forged
<b>Grades</b>	303, 304, 304L, 316, 316L, 410, 416, 420, 431		
<b>Diameter (Size)</b>	10 mm to 24 mm	25 mm to 150 mm	150mm to 400mm
<b>Length</b>	3 upto 6 meter	3 upto 6 meter	3 upto 6 meter
<b>Heat Treatment</b>	Annealed / Solution Annealed / Quenched & Tempered/Hardened & Tempered		



## Stainless Steel Precision Bars

**Applications :** Piston Rods, Pump Shafts, Boat Shafts, Cylinder Shafts, Precision Machined Parts, Automotive Components & Others.

Condition	Cold Drawn, Centreless Ground & Polished	Peeled, Centresless Ground & Polished
<b>Grades</b>	303, 304, 304L, 316, 316L, 410, 416, 420, 430F, 431, 630 (17-4 PH) & others	
<b>Diameter (Size)</b>	6mm to 25mm (1/4" to 1")	25mm to 85mm (1" to 3-1/4")
<b>Surface Finish</b>	Upto Rms-12 max. Upto Ra 0.2 max	Upto Rms-12 max. Upto Ra 0.2 max
<b>Diameter Tolerance</b>	h7, h8, f7, f8 Half of ASTM A484	h7, h8, f7, f8 Half of ASTM A484
<b>Straightness</b>	0.5 mm per meter TIR (0.0015 inch per feet)	
<b>Out of Roundness</b>	Half of Diameter Tolerance	Half of Diameter Tolerance
<b>Length</b>	3 upto 7 meter (12 upto 22 feet)	3 upto 7 meter (12 upto 22 feet)
<b>Length Tolerance</b>	-0/+50mm or +20mm or +10mm -0/+2" or 1" or 1/2"	-0/+50mm or +20mm or +10mm -0/+2" or 1" or 1/2"
<b>Heat Treatment</b>	Annealed/Quench & Tempered	Annealed/Quench & Tempered

Superior Surface Finish, Diameter Tolerance & Straightness is achieved by additional processes, such as Straightening, Roller Burnishing and Centreless Grinding.

Precision Bars are 100% inspected for diameter tolerance, out of roundness, surface roughness & straightness by specially designed instruments & gauges.

Ultrasonic Inspection is done to ensure bars are free from internal defects. Bars are packed in strong plywood boxes with each bar protected with distance rings to avoid scratches.





## Stainless Steel Improved Machining Bars

**Applications :** Precision Components, Machined & Turned Parts, Automotive Components.

Condition	Cold Drawn, Centreless Ground & Polished	Peeled, Centresless Ground & Polished
<b>Grades</b>	303EHS, 416XM (Sulphur 0.30 to 0.35) 304, 304L, 316, 316L (Sulphur Min 0.015) 430F, 1.4404 (Sulphur 0.27 to 0.31)	
<b>Diameter (Size)</b>	6mm to 25mm (1/4" to 1")	25mm to 85mm (1" to 3-1/4")
<b>Diameter Tolerance</b>	h9 (Din 671) ASTM A 484	h9 (Din 671) ASTM A 484
<b>Length</b>	3 upto 7 meter (12 upto 22 feet)	3 upto 7 meter (12 upto 22 feet)
<b>Length Tolerance</b>	-0/+200mm or +100mm or +50mm -0"/+1 feet or +4" or 2"	-0/+200mm or +100mm or +50mm -0"/+1 feet or +4" or 2"

We offer special grades of Stainless Steel Bars with Improved Machinability. These grades undergo special melting process, Calcium-Silica (Casi) Treatment and High Sulphur Contents are key characteristic of these grades.

During Machining of components these grades result in increased productivity, better tool life and excellent chip breakage.





## Grades – Chemical Composition and Equivalent Standards

Stainless steel is essentially a low carbon steel which contains chromium at 10% or more by weight. It is this addition of chromium that gives the steel its unique stainless, corrosion resisting properties. The corrosion resistance and other useful properties of the steel are enhanced by increased chromium content and the addition of other elements such as molybdenum, nickel and nitrogen.

AISI ASTM	Equivalent EN/DIN	C % Max	Mn % Max	Si % Max	S % Max	P % Max	Cr % Max	Ni % Max	Mo % Max	Others %
201	-	0.15	5.50-7.50	1.00	0.030	0.060	16.00-18.00	3.50-5.50	-	-
201Cu		0.10	8.00-8.50	1.00	0.030	0.080	14.00-16.00	1.00-1.50		Cu : 1.50-2.00
202	-	0.15	7.50-10.00	1.00	0.030	0.060	17.00-19.00	4.00-6.00	-	-
204Cu	1.4597	0.10	7.00-8.50	1.00	0.030	0.060	16.00-18.00	1.25-2.00	-	Cu : 2.00-3.50
303	1.4305	0.15	2.00	1.00	0.15 Min.	0.045	17.00-19.00	8.00-10.00	-	-
303EHS	1.4305	0.15	2.00	1.00	0.30-0.35	0.045	17.00-19.00	8.00-10.00	-	-
304	1.4301	0.07	2.00	1.00	0.030	0.045	18.00-20.00	8.00-11.00	-	-
304L	1.4307	0.03	2.00	1.00	0.030	0.045	18.00-20.00	8.00-12.00	-	-
310S	1.4845	0.08	2.00	1.50	0.030	0.045	24.00-26.00	19.00-22.00	-	-
316	1.4401	0.07	2.00	1.00	0.030	0.045	16.50-18.00	10.00-14.00	2.00-3.00	-
316L	1.4404	0.03	2.00	1.00	0.030	0.045	16.50-18.00	10.00-14.00	2.00-3.00	-
316Ti	1.4571	0.08	2.00	1.00	0.030	0.045	16.50-18.00	10.00-14.00	2.00-3.00	Ti: Min (5xC% to 0.70)
317LN	1.4438	0.03	2.00	1.00	0.030	0.045	18.00-20.00	11.00-15.00	3.00-4.00	N: 0.10-0.22
321	1.4541	0.08	2.00	1.00	0.030	0.045	17.00-19.00	9.00-12.00	-	Ti: Min (5xC%)
409Ti	1.4512	0.08	1.00	1.00	0.030	0.040	10.50-11.75	0.50	-	Ti: 6xC% - 0.75 max
410	1.4006	0.15	1.00	1.00	0.030	0.040	11.50-13.50	-	-	-
416	1.4005	0.15	1.25	1.00	0.15 Min.	0.040	12.00-14.00	-	-	-
416XM	1.4005	0.15	1.25	1.00	0.30-0.35	0.040	12.00-14.00	-	-	-
420	1.4021	0.15 Min.	1.00	1.00	0.030	0.040	12.00-14.00	-	-	-
420B	1.4028	0.26-0.35	1.00	1.00	0.030	0.040	12.00-14.00	-	-	-
430	1.4016	0.12	1.00	1.00	0.030	0.040	16.00-18.00	-	-	-
430L	1.4016	0.03	1.00	1.00	0.030	0.040	16.00-18.00	-	-	-
430F	-	0.12	1.25	1.00	0.15 Min.	0.060	16.00-18.00	-	-	-
-	1.4104	0.10-0.17	1.50	1.00	0.15-0.35	0.040	15.50-17.50	-	1.50-2.50	-
431	1.4057	0.20	1.00	1.00	0.030	0.040	15.00-17.00	1.25-2.50	-	
174-PH	1.4542	0.070	1.00	1.00	0.030	0.040	15.00-17.50	3.00-5.00	-	CU:3.00-5.00%, Cb:0.15-0.45%





## Quality Assurance

Quality Assurance At Bhansali starts with understanding the Customers Requirement and continues till the customer is completely satisfied with the delivery of products and services. Quality Control procedures are well defined and thoroughly implemented.

**Incoming Inspection :** Incoming Raw Materials are the foundation for the final product. We make sure that we start with the best raw materials. Our suppliers are well-informed with our quality requirements.

Raw Materials are inspected for:

- Chemical & Mechanical Properties
- Surface Quality

**In-Process Inspection :** In-Process Quality Control Procedures are defined to the minutest details. These procedures enable operators, supervisors and quality control inspectors to produce the best quality products. Our Production team is at the core of the quality assurance system.

In-process Materials are inspected for:

- Dimensional properties such as tolerance, lobing, out-of-roundness, length, straightness
- Inprocess Mechanical Properties such as Tensile, Elongation, Yield, Reduction of Area, Hardness at Core.
- Surface Finish

**Finished Goods Inspection :** The quality assurance team in the finished goods department – we call them “ Bhansali’s Internal Customer”. They inspect materials from the customer’s perspective. Our products comply with relative international standards such as ASTM, DIN, EN, BS, AMS, ASME, QQS, MIL, JIS, NACE and others. Some of the related specifications are ASTM A193 / A276 / A320 / A479 / A582 & EN 10088-3. Test certifications comply with Euronorm EN 10204 3.1B / DIN 50049 3.1B.

Finished Goods are inspected for:

- Surface Finish
- Final Mechanical Properties
- Mercury Contamination, Macro and Micro Properties, Inter Granular and Corrosion Properties
- Packing, Color Coding, Marking



## Quality Policy

At Bhansali Bright Bars Pvt Ltd, We Believe In Long Term Business Relationship With The Customers And Ongoing Customer Satisfaction By Supplying Consistent Quality Product Through Effective Involvement Of All Employees And Continual Improvement Of Processes.



## Tolerance Chart For SS Round Bars as per ISO

Size Range (mm)	h8	h9	h10	h11	h12	h13	K12/K13
Upto 6	-0.018	-0.030	-0.048	-0.075	-0.120	-0.180	-
Over 6 upto 10	-0.022	-0.036	-0.058	-0.090	-0.150	-0.220	-
Over 10 upto 18	-0.027	-0.043	-0.070	-0.110	-0.180	-0.270	-
Over 18 upto 30	-0.033	-0.052	-0.084	-0.130	-0.210	-0.330	+0.10/+0.15
Over 30 upto 50	-0.039	-0.062	-0.100	-0.160	-0.250	-0.390	+0.15/+0.20
Over 50 upto 80	-0.046	-0.074	-0.120	-0.190	-0.300	-0.460	+0.20/+0.25
Over 80 upto 120	-0.054	-0.087	-0.140	-0.220	-0.350	-0.540	+0.25/+0.30

## Tolerance Chart For SS Round Bars as per ASTM A 484

Table 6 - Cold Finished Round Bars

Size Range in Inch	Tolerance
1/16" to less than 5/16"	+/- 0.001"
5/16" to less than 1/2"	+/- 0.0015"
1/2" to less than 1"	+/- 0.002"
1" to less than 1-1/2"	+/- 0.0025"
1-1/2" to less than 4"	+/- 0.003"

Table 7 - Cold Finished Hexagon & Square Bars

Size Range in Inch	Tolerance
1/16" to less than 5/16"	- 0.002"
5/16" to less than 1/2"	- 0.003"
1/2" to less than 1"	- 0.004"
1" to less than 2"	- 0.006"
2" to less than 3"	- 0.008"
3" and Over	- 0.010"

## Hardness Conversions Chart

Brinell Hardness HB	Vickers Hardness HV	Rockwell Hardness HRC	Rockwell Hardness HRB	Tensile Strength ksi
321	339	34	108	158
311	328	33	108	154
302	319	32	107	150
293	309	31	106	146
285	301	30	105	142
277	292	29	104	138
269	284	28	104	135
262	276	27	103	131
255	269	25	102	125
248	261	24	101	121
241	253	23	100	119
235	247	22	99	117
229	241	21	98	113
223	234	-	97	110
217	228	-	96	107
212	222	-	95	102
207	218	-	95	100
202	212	-	94	98
197	207	-	93	96
192	202	-	92	94
187	196	-	91	90
183	192	-	90	89
179	188	-	89	87

Brinell Hardness HB	Vickers Hardness HV	Rockwell Hardness HRC	Rockwell Hardness HRB	Tensile Strength ksi
174	182	-	88	84
170	178	-	87	82
166	175	-	86	80
163	171	-	85	78
159	167	-	84	77
156	163	-	83	76
153	160	-	82	75
149	156	-	81	74
146	153	-	80	72
143	150	-	79	71
140	147	-	78	70
137	143	-	76	67
134	140	-	75	66
131	137	-	74	65
128	134	-	73	64
126	132	-	72	63
124	129	-	71	62
121	127	-	70	60
118	124	-	69	59
116	122	-	68	58
114	119	-	67	57
111	117	-	66	56
-	-	-	-	-



We are exporting

our products to **industries** like :

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