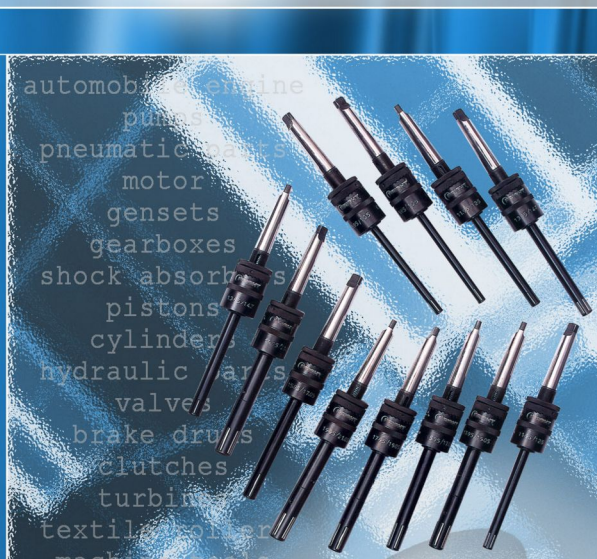
Bright Burnishing Tools
Catalogue : 2004



automobile engine
pumps
pneumatic parts
motor
gensets
gearboxes
shock absorbers
pistons
cylinder
hydraulic parts
valves
brake drums
clutches
turbine
textile machinery
machine tools
precision parts
ink rollers
instruments
bicycles
printers
copiers
engine parts
mixers
grinding machines
pipe fittings
compressors
AC & DC drives
robots
washing machines
sewing machine

mirror like finish
surface hardness increase
zero rejections
precision
close tolerance
lesser cycle time
higher productivity
batch production
single pass
economical operation

BRIGHT

DNV
Accredited by the RvA
ISO-9001 REGISTERED FIRM
Det Norske Veritas B.V., NETHERLANDS

Contents

Bright Burnishing Tools Private Limited, Coimbatore -641037, India
Phone - 91-422-2210122, 4387340 Fax - 91-422-4387622
e-mail - burnish@vsnl.com Website - www.brightburnishingtools.com

Introduction

Bright Burnishing Tools Private Limited

About Us

BBTPL was incorporated in the year 1994 with an intent to carve a niche in the new arena of “Burnishing Tools” and has with sustained efforts, achieved it over the period through the intensive concept selling and aggressive sales promotional measures.

Promotor

The Company was founded by Mr Devraj C., a technocrat engineer having over 25 years experiance, specialized in “Tools & Dies” and worked in higher echelon of the management in a premier corporate entity in Coimbatore, India. He had a stint of few years in Switzerland, prior to formation of BBTPL, on “Deputation” for advanced training and has successfully implemented the techniques and procedures learned within BBTPL.

In addtion to being a specialist in “Tools and Dies”, he also designed and manufactured wide range of Multi-specialty Tools, Jigs, Fixtures, Cutting Tools and Specialized Burnishing Tools and Machines.

Infrastructure & Team

We have specialized machines in-house for multifarious operations and are well manned by the qualified engineers, supervisors and quality controllers. We also have an independent department, which handles quality, inspection and testing of the tools and machines. The tools, being taylor-made, are manufactured with utmost diligence to ensure trouble-free operation.

In addition to the comprehensive manufacturing setup, Bright has a keen focus on upgrading to meet market requirements. To this end Bright have an extensive R & D department comprising of resident and consultancy professional drawn from industry and technical institutions throughout India. Since the inception of the company many products have been developed to meet specific industry requirements.

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Quality

Quality Management System

Certification

ISO-9001 REGISTERED FIRM
Det Norske Veritas B.V., NETHERLANDS

DNV

Accredited by the RvA

We are the first company in India to achieve ISO Certification in the burnishing tools segment. The certificate is for Design, manufacture, service and marketing of all types of Burnishing Tools. At present we have upgraded our quality management system to ISO 9001:2000 version. By this, we are able to control our processes at Incoming, In-process and Final Stages.

As a manufacturer of high reliability tools, Bright knows that everything depends on the quality of our products. From that knowledge comes our ongoing commitment to manufacture products to meet the highest quality standards.

Bright and its employees are committed to continuously improving the processes by which we provide our products and services, so that our work meets requirements and is done right the first time.

Our manufacturing facility meets ISO 9001:2000 standards and we are working aggressively to meet the rigorous standards demanded by ISO.

Customer satisfaction is a key indicator of quality and so we seek our current and prospective customers' inputs and involvement in improving our products and services.

DNV

DET NORSKE VERITAS

MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 00292-2003-AQ-MDR-RvA

This is to certify that
the Quality Management System
of

BRIGHT BURNISHING TOOLS PRIVATE LIMITED

at

No.42, N.G.Ramaswamy Road, Pappanaicken Palayam, Coimbatore - 641 037, INDIA

has been found to conform to the Quality Management System Standard:
ISO 9001:2000

This Certificate is valid for the following product or service ranges:

DESIGN, MANUFACTURING, MARKETING AND SERVICE OF ALL TYPES OF BURNISHING TOOLS.

Original Certification date: 2001-07-20

Place and date: Chennai, 2003-09-25

This Certificate is valid until: 2006-09-11

for the Accredited Unit: DNV CERTIFICATION B.V., THE NETHERLANDS

Compliance to the Standard in respect to the indicated scope is verified by the DNV approved registered Team Leader:

MGMT. SYS. RvA C024

T J Manohar
Lead Auditor

Krishnakumar N.R.
Management Representative

Lack of fulfillment of conditions as set out in the Appendix may render this Certificate invalid.

DNV 5023/1.2

DNV CERTIFICATION B.V. [illegible]

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About Burnishing

Introduction

Technical Description

Burnishing is a cold rolling process without removal of metal. A set of precision rollers is used to roll on the component surface with adequate pressure. As a result all the pre-machined peaks gets compressed into valleys thus giving a mirror like surface finish.

Advantages of Roller Burnishing

1 Mirror like surface finish

Surface finish ranging from 0.05 Ra – 0.2 Ra can be achieved easily by using Bright Burnishing Tools. Both ferrous and non-ferrous materials can be Roller Burnished in soft stage, Heat Treated components cannot be burnished.

2 Dimensional Consistency / Repeatability

Very close and consistent dimensional tolerance can be achieved in several thousand components by using Bright Burnishing Tools. Assembly problems are totally eliminated since part dimensions are maintained within tolerances.

3 Single Pass Operation

Since the roller burnishing process is a single pass operation manufacturing cycle times can be reduced compared to other fine finishing operations such as grinding, honing or lapping

4 Increase in Surface Hardness

Since Roller burnishing operation is cold rolling process, work hardening takes place on the cold worked surface. Roller Burnishing gives a better wear resistance on the rubbing surfaces thereby part service life increases.

5 Reduces the Reworks and Rejections

Control of tight tolerances and high surface finishes using conventional techniques such as boring or reaming can be difficult, especially in a mass production situation. Bright Burnishing tools can eliminate these problems by providing high repeatability finish sizing. Pre burnish sizes are relatively open toleranced and achieved easily by conventional machining methods. Generation of high repeatable sizing minimises rework and rejection during the assembly process thus saving time and cost.

6 Multiple Usage

You can use Bright Roller Burnishing Tools in CNC Turning centers and CNC Machining centers, Conventional Lathes, Drilling Machines, Automats, etc. You can also use burnishing tools in specially built burnishing machines for mass production .

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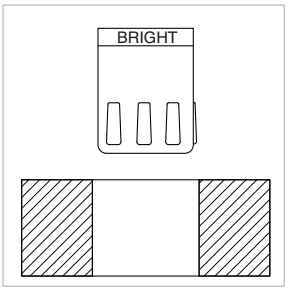
Burnishing Tools

Internal Diameter Burnishing Tool

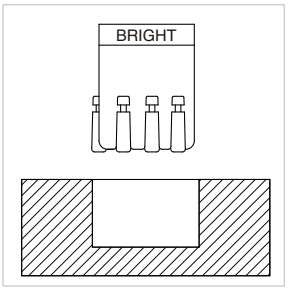
Technical Description

Bright Multi roller ID burnishing tools are available for through & blind bores. Component having ID 5mm and above can be burnished. Though the tools have standard burnishing length the same can be redesigned according to the customers requirement. On request the tools can be supplied with self-feed design.

- *Adjustable Tool diameter within a range*
- *Superior dimensional consistency after burnishing*
- *Mirror surface finish in the bores after burnishing*
- *Single pass operation*
- *Can be used in lathes, drill machine and CNC Machines*
- *Quick return on investment*
- *High productivity*



ID Tool Through



ID Blind Bore

Blind Bore ID Tool
(Small Dia)

Through Bore ID tool
(Self feed Design)

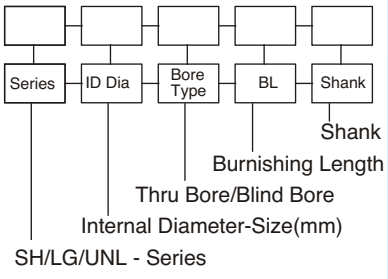
Through Bore ID Tool
(Large Dia)

Tools For Thru & Blind Bore

Ordering Guide

Tools are available in three types

Series	Dia	Burnishing Length
SH	5mm-68mm	Upto 60 mm
LG	5mm-68mm	60mm & above
UNL	68mm & above	Any Length



Kindly send us a part drawing or detailed hand sketch and request a quotation.

Sample Applications

Rocker Arm

Connecting Rod

Engine Casing

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Multi Roller Tools

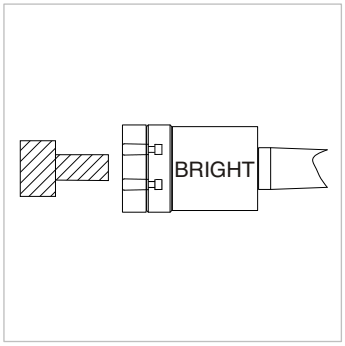
Outer Diameter Burnishing Tool

Technical Description

Bright multi roller OD burnishing tools are available for plain & stepped shafts. Tools available for component OD 2mm and above. For Plain shaft tools can be supplied with hollow shank so that shaft length greater than tool length can also be burnished.

Outer Diameter Burnishing Tool

- ❖ *Available from 2mm and above*
- ❖ *Adjustable Tool diameter within a range*
- ❖ *Superior dimensional consistency after burnishing*
- ❖ *Mirror surface finish in the shafts after burnishing*
- ❖ *Single pass operation*
- ❖ *Can be used in lathes, drill machine and CNC Machines*
- ❖ *Quick return on investment*
- ❖ *High productivity*

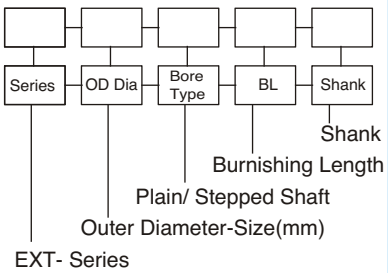


OD Stepped Shaft

Tools For Plain & Stepped Shaft

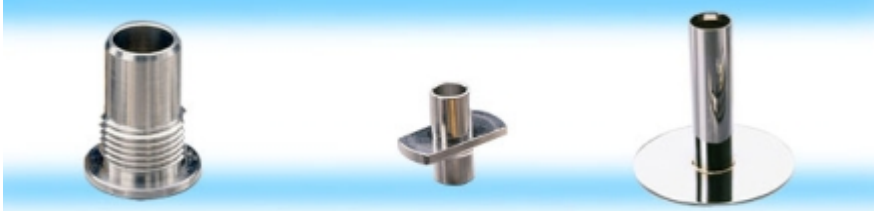
Large Outer Diameter Burnishing Tool

Ordering Guide



Kindly send us a part drawing or detailed hand sketch and request a quotation.

Sample Applications



Precision Turned Components

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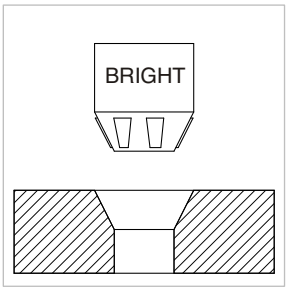
Multi Roller Tools

Internal and External Taper Burnishing Tool

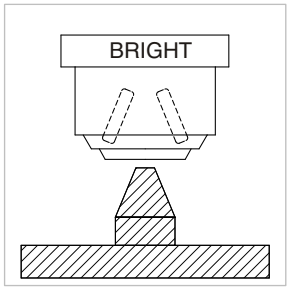
Technical Description

Internal and External Tapers can be burnished with Bright taper burnishing tools. These tools can be supplied in any angles according to the component design. These tools are used to achieve good blue matching between mating parts.

- ❖ *Available from minor diameter 5mm and above*
- ❖ *Highly suitable for matching tapers*
- ❖ *Maximum blue matching after burnishing*
- ❖ *Tools available in required taper angles*
- ❖ *Can be used in lathes, drill machine and CNC Machines*
- ❖ *Highly suitable for high pressure applications*



ID Taper Tool



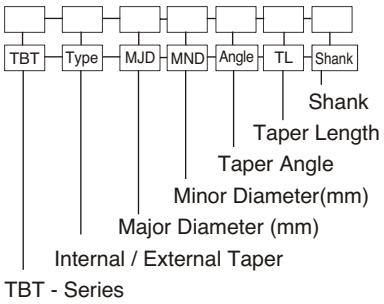
OD Taper Tool

Internal Taper Tool

Tools for Internal & External Tapers

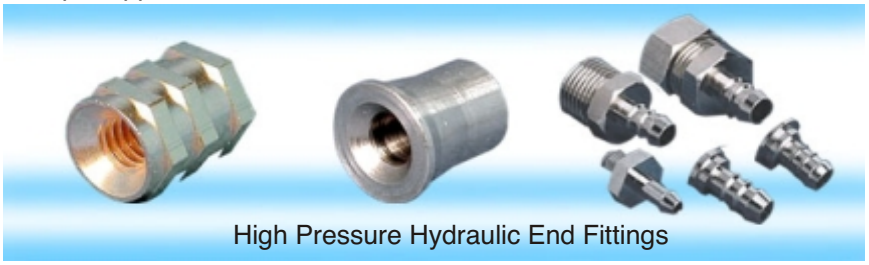
External Taper Tool

Ordering Guide



Kindly send us a part drawing or detailed hand sketch and request a quotation.

Sample Applications



High Pressure Hydraulic End Fittings

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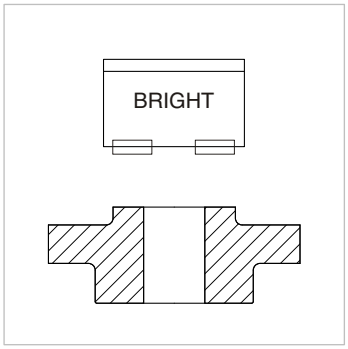
Multi Roller Tools

Flat Circular Face Burnishing Tool

Technical Description

Flat circular faces can be burnished with Bright face burnishing tools. A minimum relief of 5mm in the center of the component is required for effective functioning of the tool.

- ❖ *Available for flat circular face with center relief greater than 5mm*
- ❖ *Mirror surface finish in flat circular faces*
- ❖ *Ideal for face matching application*
- ❖ *Single pass operation*
- ❖ *Can be used in lathes, drill machine and CNC Machines*
- ❖ *Quick return on investment*
- ❖ *High productivity*

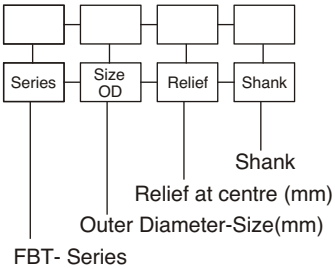


Flat Circular Face Burnishing Tool

Face
Burnishing Tool

Tools For Flat Circular Faces

Ordering Guide



Kindly send us a part drawing or detailed hand sketch and request a quotation.

Sample Applications

Face Burnished Components

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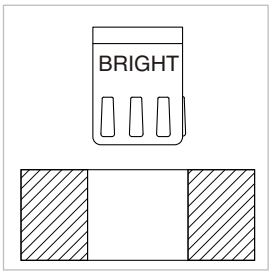
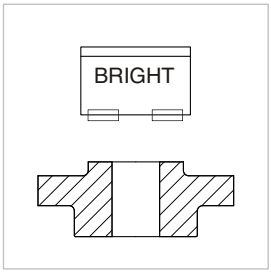
Multi Roller Special Tools

Bright special burnishing tools are made to customer specific requirements. Special profile tools can be designed according to customer specification. Some of the special tools which are designed are listed below for your reference.



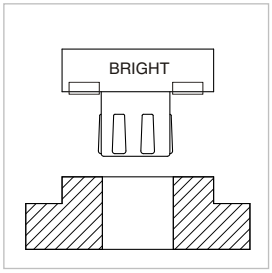
ID Tool Thru Bore

Bright Internal Diameter Burnishing Tool having Extra Burnishing Length



Face Burnishing Tool

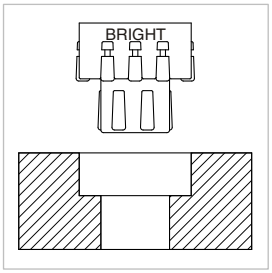
Bright Large Face Burnishing Tool



Combined ID and Face Burnishing

Bright Face and Internal Diameter Tool

Kindly send us a part drawing or detailed hand sketch and request a quotation.



ID Tool Blind Bore

Bright Combined Bore Tool

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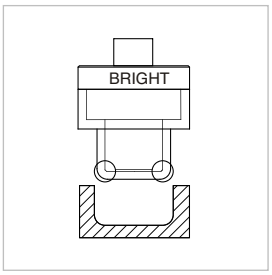
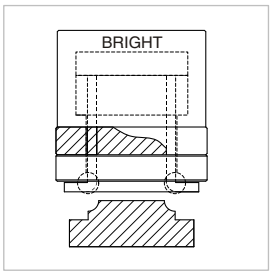
Multi Roller Special Tools



ID Taper Tool Thru Bore

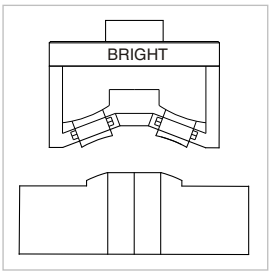
Bright Internal Ball Race Tool 1



Ball Race OD Profile Burnishing

Bright External Ball Race Tool 2

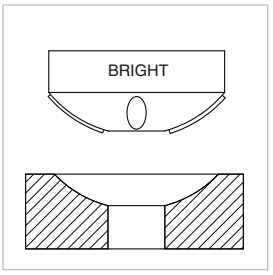
Bright Spherical Burnishing Tool



Convex Profile Burnishing

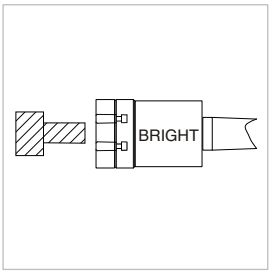
Convex Profile

Concave Profile



Concave Profile Burnishing

Bright Large Outer Diameter Burnishing Tool



OD Tool Stepped Shaft

Bright Multi-ball Special Burnishing Tool

Ordering Guide

Kindly send us a part drawing or detailed hand sketch and request a quotation.

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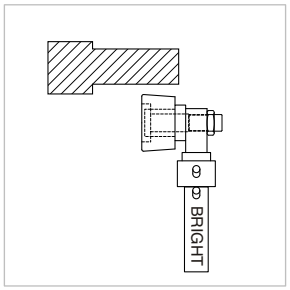
Single Roller Tools

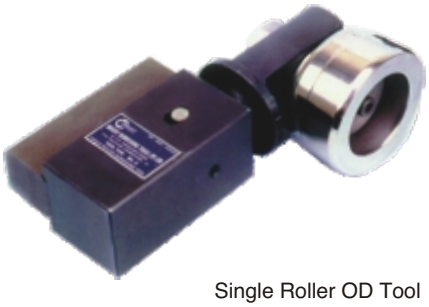
Outer Diameter Burnishing Tool

Technical Description

Bright single roller carbide OD burnishing tool can burnish any larger OD greater than 25mm. The tool is supplied with superior quality finished carbide rollers mounted on precision bearing arrangement.



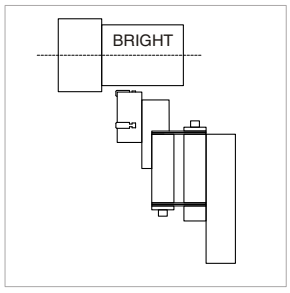
Single Roller OD Tool



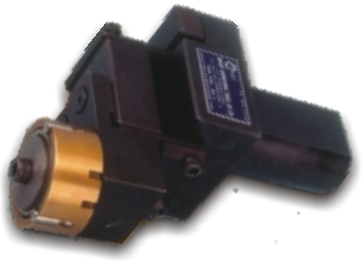
Single Roller OD Tool

- ❖ *Best suitable for frequently varying job diameters*
- ❖ *Single tool can burnish any diameter*
- ❖ *Best quality CARBIDE Rollers are used*
- ❖ *Single pass operation*
- ❖ *Can be used in lathes, and CNC Machines*
- ❖ *Highly cost effective*
- ❖ *Available in different shanks*

Bright single roller 'H'-type tool can burnish component diameter between 15mm and 60mm. Interchangeable Carbide/HSS rollers are assembled in the retaining cage and guide roller arrangement. Rollers can be changed easily. This tool is highly suitable for Batch production and mass production.



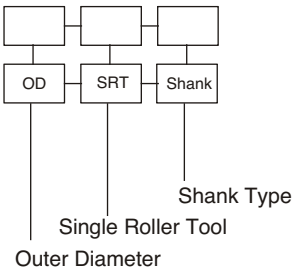
Single Roller OD H-Type



Single Roller OD H-Type Tool

Tools for Varying Large Outer Diameter

Ordering Guide



Kindly send us a part drawing or detailed hand sketch and request a quotation.

Sample Applications

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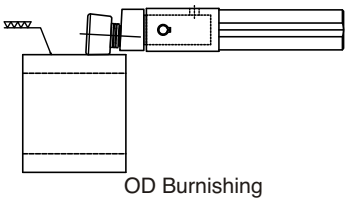
Single Roller Tools

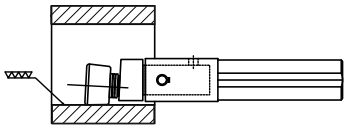
Multi Surface Burnishing Tool (Carbide)

Technical Description

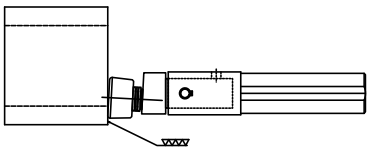
Bright Multi surface carbide single roller burnishing tool can burnish any larger ID, OD and flat circular faces. The tool can be used for component diameter greater than 35mm. The tool is supplied with superior quality finished carbide rollers mounted on precision bearing arrangement.



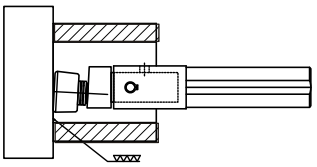
OD Burnishing



ID Burnishing



Face Burnishing



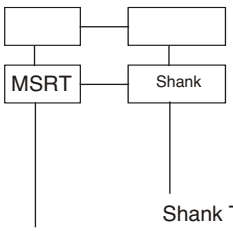
ID Face Burnishing

- *Highly suitable for large OD,ID & FACE*
- *Best suitable for frequently varying jobs*
- *Single tool can burnish OD,ID & FACE*
- *Best quality CARBIDE Rollers are used*
- *Single pass operation*
- *Can be used in lathes, and CNC Machines*
- *Highly cost effective*
- *Available in different shanks*

MSRT Tool

Tools for Varying Large OD, ID & Face

Ordering Guide



Shank Type

Multi-surface Single Roller Tool

Kindly send us a part drawing or detailed hand sketch and request a quotation.

Sample Applications

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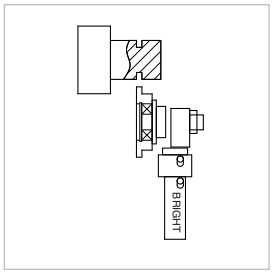
Single Roller Tools

Special Burnishing Tool

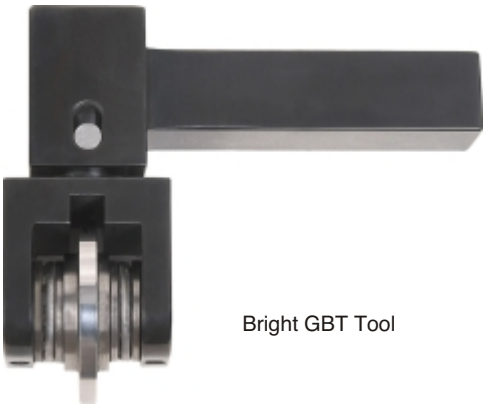
Technical Description

Single Roller Groove Burnishing Tool

Bright single roller groove burnishing tools can burnish grooves on OD. This is a special tool in the single roller tool category. Groove widths 1mm and above can be burnished. The tools are available both in Carbide and HSS Rollers.



OD Groove Tool



Bright GBT Tool

Single Roller Profile Burnishing Tool

Bright single roller profile burnishing tools are special tools for burnishing special profiles on OD. Burnishing Rollers can be supplied according to the customers specification.

Bright Profile Tool

Ordering Guide

Kindly send us a part drawing or detailed hand sketch and request a quotation.

Sample Applications

Cat: BBT 2004 - 4.8 - 8

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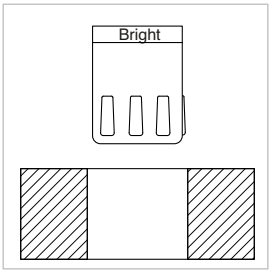
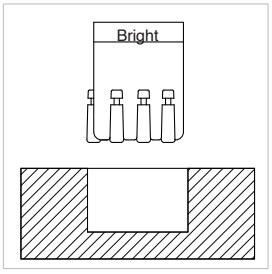
Burnishing Types

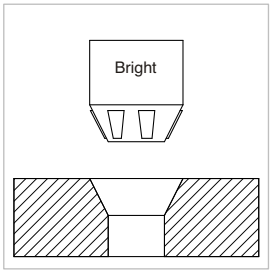
Different types of burnishing tools used are shown below.



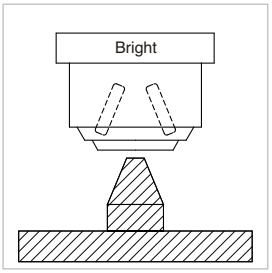
ID Tool Thru Bore



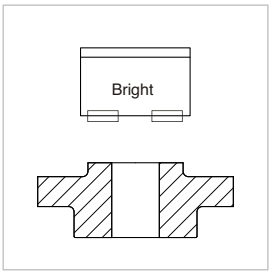
ID Tool Blind Bore



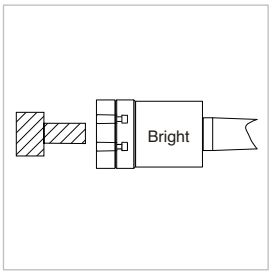
ID Taper Tool



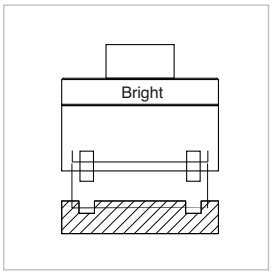
OD Taper Tool



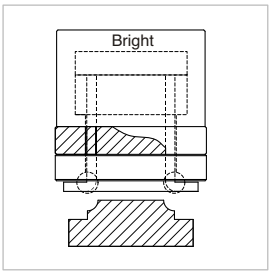
Face Burnishing Tool



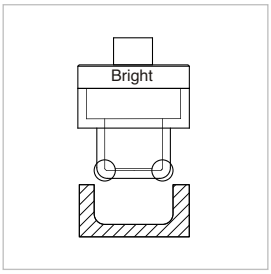
OD Tool Stepped Shaft



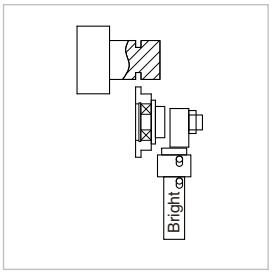
Face Groove Burnishing



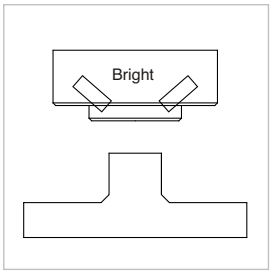
Ball Race OD Profile Burnishing



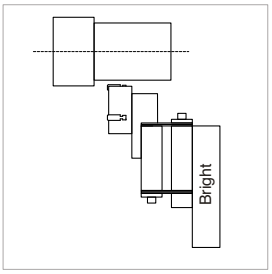
ID Taper Tool Thru Bore



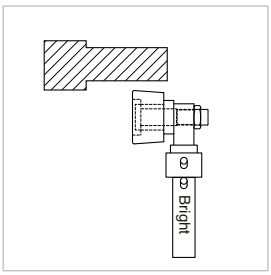
Groove Burnishing Tool



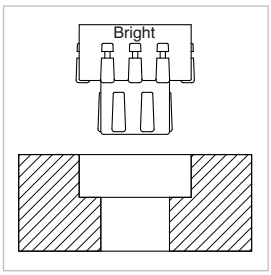
Combined Bore & Chamfer Tool



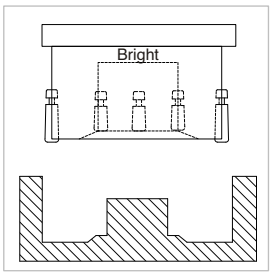
H-Type Single Roller Tool



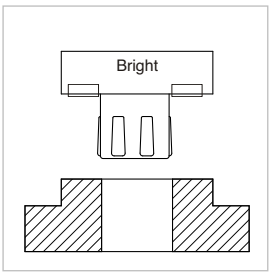
Single Roller OD Tool



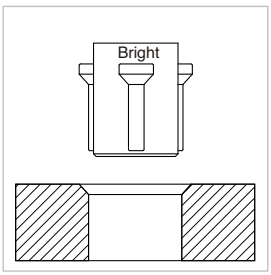
ID Stepped Bore Tool



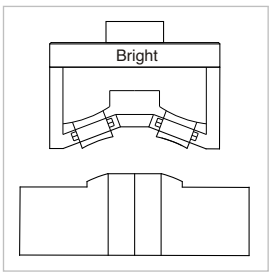
Combined ID and OD Burnishing



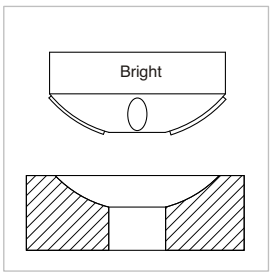
Combined ID and Face Burnishing



Combined Bore and Chamfer Tool



Convex Profile Burnishing



Concave Profile Burnishing

Tools other than shown are also available upon request

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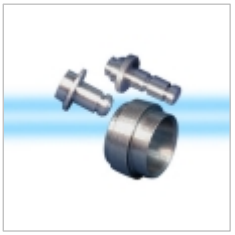
Applications

Bright Burnishing Tools are being used in various sectors like :

Precision Automobile Components

Machine Tool Parts



Precision Turned Components

Textile Machine Parts

Hydraulic & Pneumatic Components

Railway Wagon and Engine Parts

Motor and Pump Parts

Aircraft Parts

Home Appliance Components

Defence Vehicle and Equipment Parts

Agriculture and Farm Equipment Components

Other than shown applications, tools can be made upon request for varied application.

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Sample Applications

Bright Burnishing Tools are for wide range of applications are shown below.

Primer

Shaft

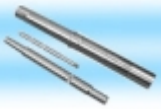
Submersible Bush

Rocker arm

Connecting Rod

Oil Pump Body

Engine Head

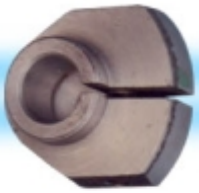


Motor Shaft

Valve Stem

Nozzle

Bush



Web

Shock Absorber

Precision Turned Components

Precision Turned Components

Precision Turned Components

Engine Casing

Pneumatic Component

Piston

Cycle cone

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Technical Information

Settings and Results

STANDARD INTERNAL DIAMETER TOOLS

Sl. No.	SERIES WITH DIA RANGE	SHANK SIZE	STANDARD BURNISHING LENGTH (PLAIN BORE)	BURNISHING LENGTH FOR (THROUGH BORE)	ADJUSTING RANGE IN MM
1.	SH 0616	MT2	60	73	- 0.05 + 0.2
2.	SH 1626	MT2	60	73	- 0.1 + 0.3
3.	SH 2635	MT2	65	80	- 0.2 + 0.4
4.	SH 3545	MT2	65	80	- 0.2 + 0.4
5.	SH 4555	MT3	70	85	- 0.2 + 0.4
6.	SH 5568	MT3	70	85	- 0.2 + 0.4
7.	LG 0616	MT2	110	125	- 0.05 + 0.2
8.	LG 1626	MT2	110	125	- 0.1 + 0.3
9.	LG 2635	MT3	110	125	- 0.2 + 0.4
10.	LG 3545	MT2	200	220	- 0.2 + 0.4
11.	LG 4568	MT3	200	220	- 0.2 + 0.4
12.	UNL 68 - 110	MT3	160	180	- 0.2 + 0.4
13.	UNL 110 - 200	MT4	160	180	- 0.2 + 0.6

Note : In these series Burnishing Length can be increased by means of special adaptors. Tool Holder other than mentioned is optional.

STOCK ALLOWANCE

DIAMETER	STOCK ALLOWANCE
5 - 12 mm	0.01 - 0.02 mm
13 - 25 mm	0.013 - 0.020 mm
26 - 50 mm	0.013 - 0.025 mm
50 and above	0.018 - 0.035 mm

SPEED & FEED CHART

Tool Dia (mm)	Speed (RPM)	Tool Feed Rate (mm/rev)
5 - 10	1020 - 4300	0.25 - 0.50
10 - 15	610 - 3100	0.45 - 0.90
15 - 20	500 - 1800	0.75 - 0.90
20 - 25	380 - 1500	0.8 - 1.4
25 - 30	300 - 1000	1.2 - 1.7
30 - 35	275 - 900	1.6 - 2.0
35 - 40	235 - 825	1.9 - 2.4
40 - 45	215 - 700	2.1 - 2.6
45 - 50	190 - 610	2.8 - 3.2
50 - 55	170 - 540	3.4 - 3.9

Tool Dia (mm)	Speed (RPM)	Tool Feed Rate (mm/rev)
55 - 60	160 - 510	3.8 - 4.2
60 - 65	150 - 460	4.2 - 4.5
65 - 70	140 - 435	2.2 - 2.4
70 - 75	125 - 400	2.5 - 2.6
75 - 90	110 - 380	2.5 - 2.3
90 - 100	95 - 325	3.2 - 3.9
100 - 115	85 - 285	3.9 - 4.6
115 - 130	75 - 225	4.5 - 5.2
130 - 140 & above	70 - 210	5.8 - 5.9

The above given speed and feed are guidelines. However exact parameters should be achieved with trials

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Settings and Results

TROUBLE SHOOTING

PROBLEM	CAUSE	REMEDY
Burnishing finish not achieved	❒ Wrong tool setting	❒ Correct the tool setting as explained.
Burnished bore having taper and ovality	❒ Pre-burnishing condition not maintained	❒ Check pre-burnished part for taper and ovality and correct pre-burnishing operation such as drilling, turning, reaming, boring to desired tolerances
Excessive heat produced during burnishing	❒ Inadequate flow of coolant	❒ Use continuous flow of proper coolants
Poor life of Rollers	❒ Inadequate flow of coolant ❒ Improper speed and feed selection ❒ Incorrect burnishing allowance	❒ Use continuous flow of proper coolants. ❒ Select proper speed and feed as per chart. ❒ Check pre-burnishing dimension and correct pre-burnishing operation to obtain desired dimension.
Poor surface finish after some usage to tool.	❒ Uncleaned tool ❒ Wear out of rollers	❒ Clean the tool properly after use and oil before storage. ❒ Replace wornout rollers.
Breakage of cage and guide rollers	❒ Incorrect burnishing allowance ❒ Excess load	❒ Check and correct burnishing allowance. ❒ Set the tool as per the guide.

Note : The cleaning and lubricating of tool before and after every use provides a continuous trouble free service.

SURFACE FINISH FOR VARIOUS OPERATIONS

Operation	Burnishing	Honing	Ground	Reaming	Bore	Turning
Surface Finish (RA)	0.05 -0.2	0.1 - 0.2	0.2 - 0.4	0.4 - 0.8	0.8 - 1.2	1.5 - 2.00
Diameter Change (mm)	0.025	0.063	0.063	0.250	0.50	0.95

SURFACE FINISH CHART

Ra	R max	Rz	N	Triangle Mark
0.0013a	0.05s	0.05z		▼▼▼▼
0.025a	- .01s	0.1z	N1	
0.05a	0.2s	0.2z	N2	
0.10a	0.4s	0.4z	N3	
0.20a	0.8s	0.8z	N4	▼▼▼
0.40a	1.6s	1.6z	N5	
0.80a	3.2s	3.2z	N6	
1.6a	6.3s	6.3z	N7	▼▼
3.2a	12.5s	12.5z	N8	
6.3a	25.0s	25.0z	N9	▼
12.5a	50.0s	50.0z	N10	
25.0a	100.0s	100.0z	N11	~
50.0a	200.0s	200.0z	N12	
100.0a	400.0s	400.0z		

Note : Rt = Ra x 4

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Contact

Sales and Service Network

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Coimbatore
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Web: www.brightburnishingtools.com

Sales and Service Network at:
Delhi, Maharashtra, Gujarat, Karnataka, Andrapradesh and Tamilnadu

Abroad enquires
Contact thru email burnish@vsnl.com

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