

RITSUHA

**ENGINEERED
WITH EXCELLENCE**



ENGINE PARTS



HIGH GRADE
RAW MATERIAL



QUALITY AT PAR
OEM STANDARDS



PRECISE TOLERANCE FOR BETTER
EFFICIENCY & LESS WEAR RATE

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RITSUKA

www.ritsukaparts.com

About the company

Eastman Auto and Power Ltd is the company behind the brand –“Ritsuka”.

We are one of the top manufacturers and exporters. We engineer a massive capacity of approx. 10 lakh units of different motorcycle and automotive products every month and at the same time; master a wide range of around 100-120 different models.

The promise of quality and an unmatched product mix defines us. we can proudly say that we are one of the finest companies in the automotive industry to provide complete value to our customers.

We also strive to assure our customers that the in-house quality control team constantly monitors every aspect of business, from production to our valued customers. Our expert team ensures that each product supplied is of the highest standards. Each product is tested in our specialized testing centers to ensure that our product suits market conditions. With a focus on value in each phase, we lay emphasis on product quality, packaging as well as distribution.

We also manufacture motorcycle complete units, automotive batteries, tyres and tubes.

Know more about us and our business at

www.eastmanautogroup.com

Ritsuka - Our Brand

Our brand redefines premium for masses when it comes to motorcycle spare parts. Ritsuka is all about precision based engineering and consummate craftsmanship inspired by the Japanese philosophy of "Monozukuri". With the aim to delight a worldwide customer base. The brand is focused on offering premium quality experience and highly durable spare parts to masses. To this end, we strive for continuous innovation and thus, introduce the world of motorcycle spare parts to a new paradigm of excellence. Every part adheres to a design language reflecting superior form, function, ruggedness and value for everyone.

Ritsuka is precision

Innovation is only a beginning. What really makes Ritsuka spare parts extraordinary is an obsession with precision and the pursuit of perfection.

Ritsuka is quality

When it comes to quality, we believe in perfection. Ritsuka spare parts promise durability, longevity and top-notch quality.

Ritsuka is focused engineering

Engineering may be just another word for the world, but for us it is the world. The foundation for everything we do under our brand - Ritsuka is in-depth knowledge, at every stage.

Explore Ritsuka at www.ritsukaparts.com

Cylinder Kit

Product

Made up of high performance ADC 12 aluminum alloy with high wear resistant cast iron sleeve, we offer world class quality Cylinder Kits

Strengths:

- Precise tolerance for better efficiency and less wear rate
- Quality at par OEM standards
- High temperature resistance

Features:

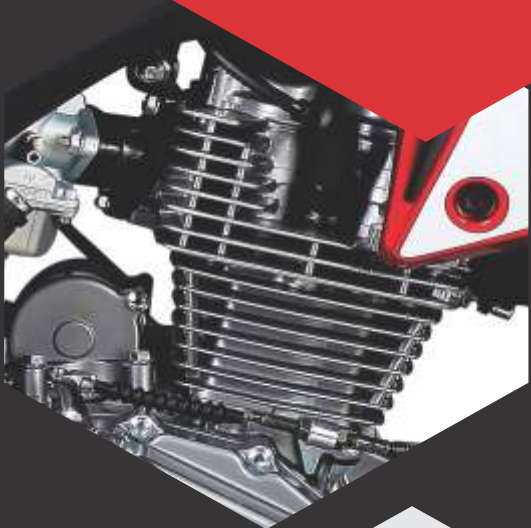
- ADC 12 raw material with high copper percentage of 1.65%
- Sleeve dia tolerance level maintained at 0.002mm ~ 0.003mm
- Heat treatment at 350°C
- Wear resistant heat treated cast iron sleeve
- Brinell hardness range ≥ 74.1 HBS
- Tensile strength range ≥ 190 Mpa
- Ductility $\geq 1\%$

Raw Material

We pay special emphasis on raw materials to begin with. As compared to competition we have focused on the smallest part as well.

Raw material specifications:

- Lightweight and structural material
- Resistant to corrosion
- Endures high temperatures



Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
BOP (Bought Out Parts)	Iron Sleeve	In-house	BOP	More the BOP's, higher are the chances of rejection
	Piston Pin	In-house	BOP	
	Piston	In-house	BOP	
	C Clips	BOP	BOP	
	Gasket	BOP	BOP	





Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Raw Material	Cylinder	High grade ADC12 with copper content of 1.65%	Substandard ADC12 with copper content of 0.5-0.8% which is below international standards	High copper content in cylinder & pistons provides substantial increases in strength and facilitates precipitation hardening.
	Piston	High grade AC8A with copper content of 1.65%	Substandard ADC12 with copper content of 0.5-0.8% which is below international standards	Fresh raw material composition is engineered to reduce ductility making product corrosion resistant. More ductility, =1% leads to versatility and higher performance at lower cost
	Sleeve	High grade cast iron	Low grade cast iron	Heat treated corrosion resistant iron grade for robust function and less wear & tear
	Rings	High Grade Rings Material- Compression Ring - DH 30 Nodular cast iron Wiper Ring - (DQ20) STEEL Oil Ring - DS45) STEEL	Normal Steel rings	We offer lightweight & structural material with precise specifications from high grade grey iron castings derived from OEM factory named ATG
	Piston Pin	High grade (20CrMo) Steel	Low grade steel	Product is corrosion resistant
	Gasket	Non asbestos NY250	Asbestos/Rubber mix	Seal proof operation without any power loss

Manufacturing

Each step in the manufacturing process is as per global standards, below comparison explains how we manufacture our products.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Manufacturing	Production Technology	Fully Automated CNC machines with a capacity of 1 Cylinder per minute	Semi Automated CNC or Lathe machines	By using fully automated CNC machines, we offer min tolerance level products with negligible rejection at final stage
	Vertical Milling Centre	Fully Automatic VMC (Vertical milling centre)	VMC not available with most of the factories	Pistons are manufactured using VMC for precise piston pin bore and oil slots. These machines are available only with OEM manufacturers
	Heat Treatment	350 degree Heat treatment	Max 250 degree heat treatment	We ensure increase in hardness and obtain maximum strength and durability maintain brinell hardness range of = 2.74.1 HBS
	Paint Shop	Automatic Paint shop	Semi automatic / manual painting facility	We make sure that each part is visually appealing for longer duration without paint peeling off
	Electroplating	0.6-0.8 Microns	Not consistent	We offer international standard finish which provides part the ability to resist wear, fatigue and rust free surface throughout its life cycle



Apart from giving the spare part the perfect appearance, a good finishing helps to create a smoother surface for higher overall functioning of a motorcycle. We offer both color painted (shiny black, silver, matt) & sandblasted finish on cylinder.

Testing

We offer products that meet international quality standards. We offer a high grade ADC12 with copper content of 1.60-1.70%. Whereas, In Chinese products copper content is even less that international standard of 1.2%. Copper increases the resistance of a material to break under tension or load.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Testing Standards	Incoming parts	100% Inspection & testing	Random / No testing	Minimal chances of Inhouse Rejection levels prefinished / finished product
	In-process	Checking at every process thru various process specific testing gauges. Random Dimensional check with Three axis coordinate measuring machine	Visual testing	Controlled standard parameters at every process maintains sleeve diameter tolerance level of 0.002 mm ~ 0.003 mm
	Final Inspection	Pneumatic gauge for checking piston fitment and movement in cylinder sleeve	Manual gauge for checking piston movement in cylinder sleeve	Standard fitment check
	Functional Test (Cylinder mounted on Engine tested for 380 hours)	Motorcycle with our cylinder is tested in running condition continuously for 380 hrs and variation found in sleeve inner dia is only -0.012mm.	No functional testing. Only OEM level factories have this facility	International standard tests are conducted for 200 hours and variation is maintained below 0.02 mm. Hence our product is ahead of OEM standards



Product Inspection Report

Client: Ritsuka		Code : East -001		Model:YBR125		Batch Number		Jan-18	
Name : Cylinder Assy		Remark - Passed		Sample QTY : 5 PCS			Snap Check Sample QTY : 5 PCS		
No.	Inspected Terms	Tech. & Desc.	Inspection Way	Record					
				Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Conclusion
	Appearance		Visual & manual	There are no scratches & glitches, no rustys & cracks, no blowholes.					Ok
1	Diameter	$\phi 54+0.01 \ 0$	Pneumatic Measurement	Ø54.006	Ø54.004	Ø54.006	Ø54.005	Ø54.005	Ok
	Block	0.005	Pneumatic Measurement	0.003	0.004	0.003	0.004	0.003	Ok
	Surface Roughness	Ra0.4	Surface Roughometer	Ra0.4	Ra0.4	Ra0.4	Ra0.4	Ra0.4	Ok
2	Height	65.3 ± 0.05	Depth Gauge Rule	65.340	65.320	65.300	65.320	65.320	Ok
	Up Flatness	0.05	Dial Indicator	0.030	0.030	0.030	0.020	0.030	Ok
	Low Fatness	0.05	Dial Indicator	0.030	0.030	0.030	0.030	0.020	Ok
	Up & Low flatness	0.05	Dial Indicator	0.030	0.030	0.030	0.030	0.030	Ok
	Parallelism	0.05	Dial Indicator	0.030	0.030	0.030	0.030	0.030	Ok
	Up Surface Roughness	Ra1.6	Sample Block Comparison	ok	ok	ok	ok	ok	Ok
3	Low Surface Roughness	Ra1.6	Sample Block Comparison	ok	ok	ok	ok	ok	Ok
	Height	88 ± 0.5	Depth Gauge Rule	88.400	88.420	88.380	88.400	88.400	Ok
4	Size	$\phi 59.5 \ 0 -0.5$	Callipers	Ø59.2	Ø59.2	Ø59.2	Ø59.18	Ø59.24	Ok
5	Thread Centre Distance	40 ± 0.15	Callipers	40.040	40.000	40.000	40.000	40.020	Ok
6	Thread Spec.	2×M6-6H	Thread Gauge	ok	ok	ok	ok	ok	Ok
	Thread Depth	$16+1 \ 0$	Callipers	16.500	16.300	16.200	16.300	16.360	Ok
7	Size	$5.5+0.5 \ 0$	Callipers	5.700	5.600	5.600	5.700	5.600	Ok
8	Dowel Pins Diameter	$\phi 10 +0.022 \ 0$	Plug Gauge	ok	ok	ok	ok	ok	Ok
	Depth	$10+0.5 \ 0$	Callipers	10.400	10.300	10.300	10.400	10.360	Ok
9	Dowel Pins Diameter	$\phi 10 +0.022 \ 0$	Plug Gauge	ok	ok	ok	ok	ok	Ok
	Depth	$10+0.5 \ 0$	Callipers	10.300	10.300	10.320	10.340	10.360	Ok
10	Dowel Pins Diameter	$\phi 10 +0.022 \ 0$	Plug Gauge	ok	ok	ok	ok	ok	Ok
	Depth	$10+0.5 \ 0$	Callipers	10.400	10.300	10.300	10.400	10.300	Ok
11	Dowel Pins Diameter	$\phi 10 +0.022 \ 0$	Plug Gauge	ok	ok	ok	ok	ok	Ok
	Depth	$10+0.5 \ 0$	Callipers	10.400	10.300	10.300	10.300	10.300	Ok
12	Size	50 ± 0.3	Three-Dimensional	50.100	50.200	50.120	50.140	50.100	Ok
	Roughness	Ra1.6	Sample Block Comparison	ok	ok	ok	ok	ok	Ok

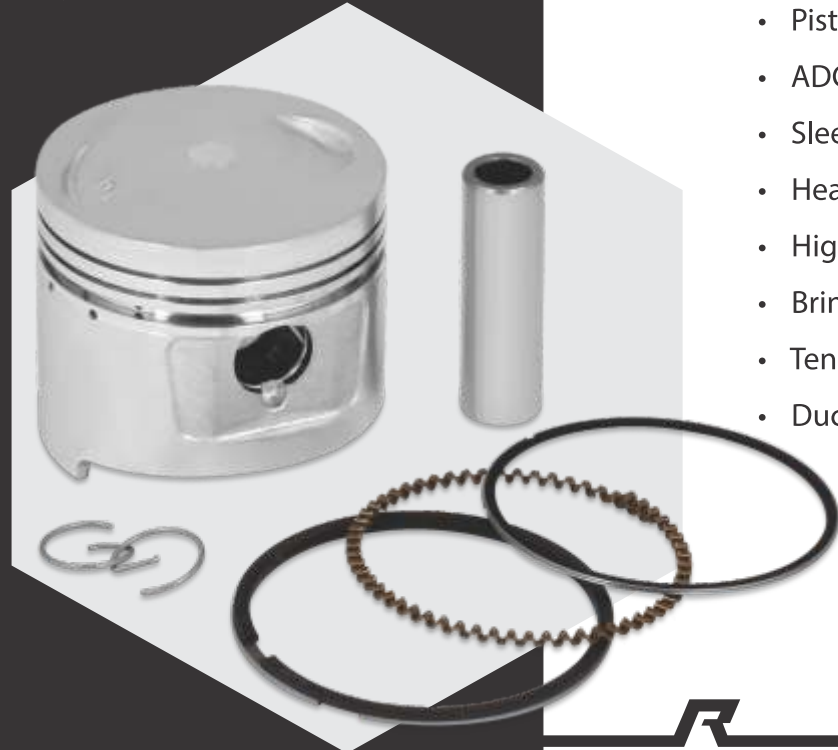


Material Composition Test

S.NO.	Chemical Composition	STD	Ritsuka	Chinese Product
1	Cu	1.5~3.5	1.873	1.770
2	Mg	=0.3	0.209	0.209
3	Zn	=1.0	0.667	0.530
4	Si	9.5~11.5	10.430	10.410
5	Fe	=0.8	0.058	0.820
6	Mn	=0.5	0.153	0.127
7	Cr	=0.2	0.043	0.017
8	Ni	=0.3	0.039	0.027
9	Pb	=0.1	0.000	0.011
10	Ti	=0.3	0.035	0.088



Piston Kit



Product

Pistons manufactured by us are made up of quality materials at all times. Each part of the piston such as compression ring, wiper ring, oil ring, piston pin, etc. are manufactured with utmost precision.

Strength:

- Friction-side coatings to maintain radial tension in the rings
- High longevity of pistons

Features:

- Made up of AC8A aluminium material
- Compression rings manufactured to precision specifications from high grade iron casting
- Manufactured under strict supervision to maintain quality
- Each component is tested so that there is no margin of error
- Compression ring made up of DH 30 nodular cast iron
- Wiper ring made up of DQ 20 steel
- Oil Rings made up of DS 45 steel
- Piston Pin made up of 20 CrMo steel
- ADC 12 raw material with high copper percentage of 1.65%
- Sleeve Dia tolerance level is maintained at 0.002mm~0.003 mm
- Heat treatment at 350 degree celcius
- Highly precised VMC machining
- Brinell hardness range ≥ 71 HBS
- Tensile strength range ≥ 125 Mpa
- Ductility $\geq 1\%$

Raw Material

Our finesse begins with quality of our raw material and for piston kits; we utilize a superior AC8A aluminium material. Each of the following components of the kit is manufactured with high temperature resistance materials and is given an international quality finish.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
BOP (Bought Out Parts)	Piston Rings	In-house	BOP	Committed to offer same quality / specifications product with every lot
	Piston Pin	In-house	BOP	
	C Clips	BOP	BOP	
Raw Material	Piston	High grade AC8A with copper content of 1.65%	Substandard ADC12 with copper content of 0.5-0.8% which is below international standards	Fresh raw material composition is engineered to reduce ductility making product corrosion resistant. More ductility, i.e. = 1%, leads to versatility and higher performance at lower cost
	Rings	High Grade Rings Material - Compression Ring - DH 30 Nodular cast iron Wiper Ring - (DQ20) STEEL Oil Ring - (DS45) STEEL	Normal Steel rings	We offer lightweight & structural material with precise specifications from high grade grey iron castings derived from OEM factory named ATG
	Piston Pin	High Grade (20CrMo) Steel	Low grade Steel	Product is corrosion resistant



PISTON KIT

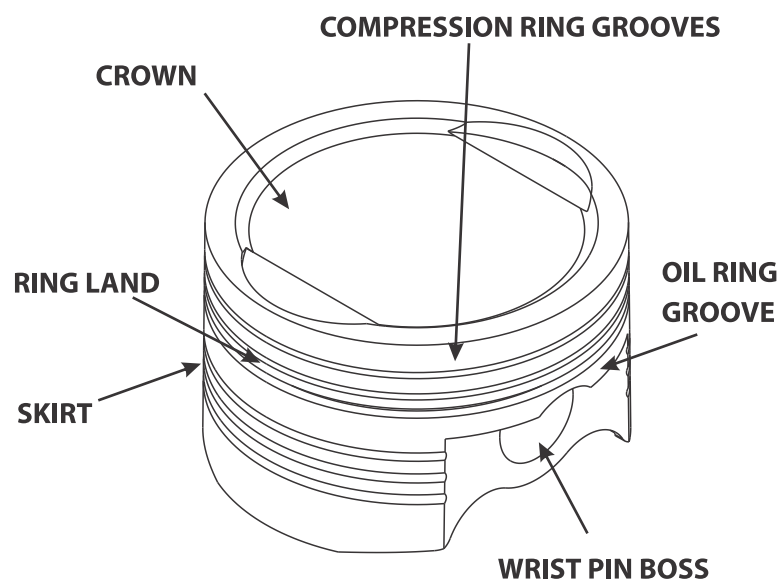




Manufacturing

We focus on each step of manufacturing, right from technology to finishing. See how we outperform competition at every step of manufacturing process.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Manufacturing	Production Technology	Fully Automated CNC machines with a capacity of 4 Pistons per minute	Semi Automated CNC or Lathe machines	By using fully automated CNC machines, we offer min Tolerance level products with negligible rejection at final stage
	Vertical Milling Centre	Fully Automatic VMC (Vertical milling centre)	VMC not available with most of the factories	Our pistons are manufactured using VMC for precise piston pin bore and oil slots. These machines are only available with OEM manufacturers
	Heat Treatment	350 degree Heat treatment	Max 250 degree Heat treatment	We ensure increased hardness and obtain maximum strength and durability. Brinell hardness range of = 74.1HBS is maintained
	Electroplating	Automatic Plating shop with different finish available in: <ul style="list-style-type: none"> Graphite finish Oxidation Tin finish 	Semi Automatic / Manual plating facility	We offer: <ol style="list-style-type: none"> 1. Plating thickness of 0.6-0.8 micron 2. Protection from hot spots 3. Aids in flame propagation 4. Friction-side coatings to maintain radial tension in the rings 5. High longevity of pistons



We manufacture and market a wide array of engineered pistons, piston pins, piston rings and circular clips for the automotive market.

Extremely skilled 160 team members manage our modern R&D centre, which consists of three different departments: technical, development and mould-making department. We produce complex cylindrical shaped and special-shaped pinholes. Using the advanced mould processing equipment, we manufacture all kinds of casting, die-casting and forging die moulds with short production cycle, high production efficiency and stable quality.

We offer graphite coating, tin plating and oxidation applied to piston skirts that act as a 'self-clearing' buffer between pistons and cylinder bores. As the pistons cycle, the coating wears in and fills incidental cylinder skirt/bore clearances. This creates an oil film layer for improved piston durability and engine output. For tins, the plating is relatively thick, giving tight tolerances and durability apart from the perfect exterior; this quality lining lends benefits to many more aspects. A coating offers reliable lasting protection on high performance applications. This coating is popular on most

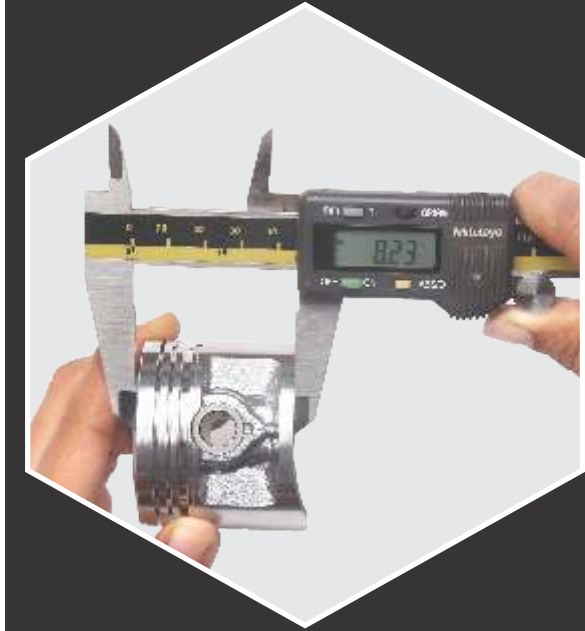


motorcycle builds. An excellent coating can protect this vital part and allows better combustion, less heat and friction, and valuable part protection.

In piston kit, we offer different types of finish – Tin finish, regular shine finish and graphite coating. Apart from giving the spare part, the perfect appearance, a good finishing helps to create a smoother surface for higher overall functioning of a motorcycle engine.

Raw Material Test

S.No.	Raw Material Chemical Composition	AC8A	Ritsuka	Chinese Product
1	Si	11 ~13 =0.70	12.86	11.94
2	Fe	0.8~1.3	0.31	0.32
3	Cu	0.8~1.3	1.09	1.01
4	Mg	0.8~1.5	1.11	0.98
5	Ni	=0.15	0.93	0.95
6	Zn	=0.15	0.01	0.01
7	Mn	=0.15	0.02	0.01
	Rockwell Hardness	63-75 HRB	70	71



Gasket & Oil seal kit

Product

We manufacture high performance motorcycle engine gasket and oil kit that offers optimum quality and are best suited to meet customer & market demands. Our strong zeal to continue as a quality driven organization coupled with innovative initiatives in product development ensures our product gets recognized.

Strengths:

- • High grade raw material
- • Precise dimension
- • Smooth surface finish
- • High heat resistance and compression resistance
- • Stringent quality control
- • Made from high quality material for ultimate sealing

Raw Material

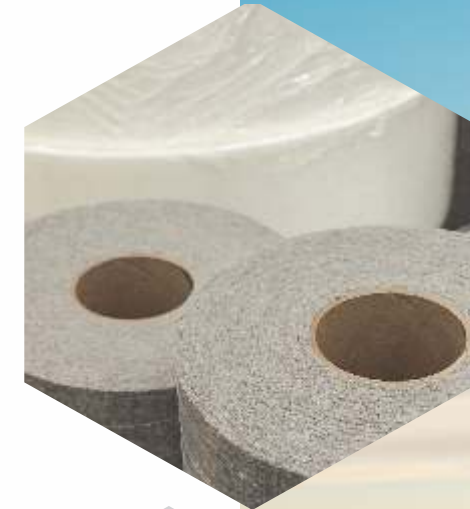
Our gaskets are manufactured of high grade –FKM, EPDM, NBR, steel and mix compound of asbestos and rubber.

Description	Material Name	Material Quality
Valve Seal Material	FKM 2062	Superior rubber to metal bonding, heat resistance, improved hydrolytic stability, good for vaccum application,
Bush Material	EPDM (Ethylene Propylene Diene Monomer) rubber	EPDM exhibits outstanding resistance to heat, ozone, steam and weather and is fireproof.
Oil Seal Material	NBR 1052	Superior rubber to metal bonding, heat resistance, improved hydrolytic stability, good for Sealing
Gasket Material	NY-250	Heat resistance, non reactive with oil and petroleum product, high compression strength



Manufacturing

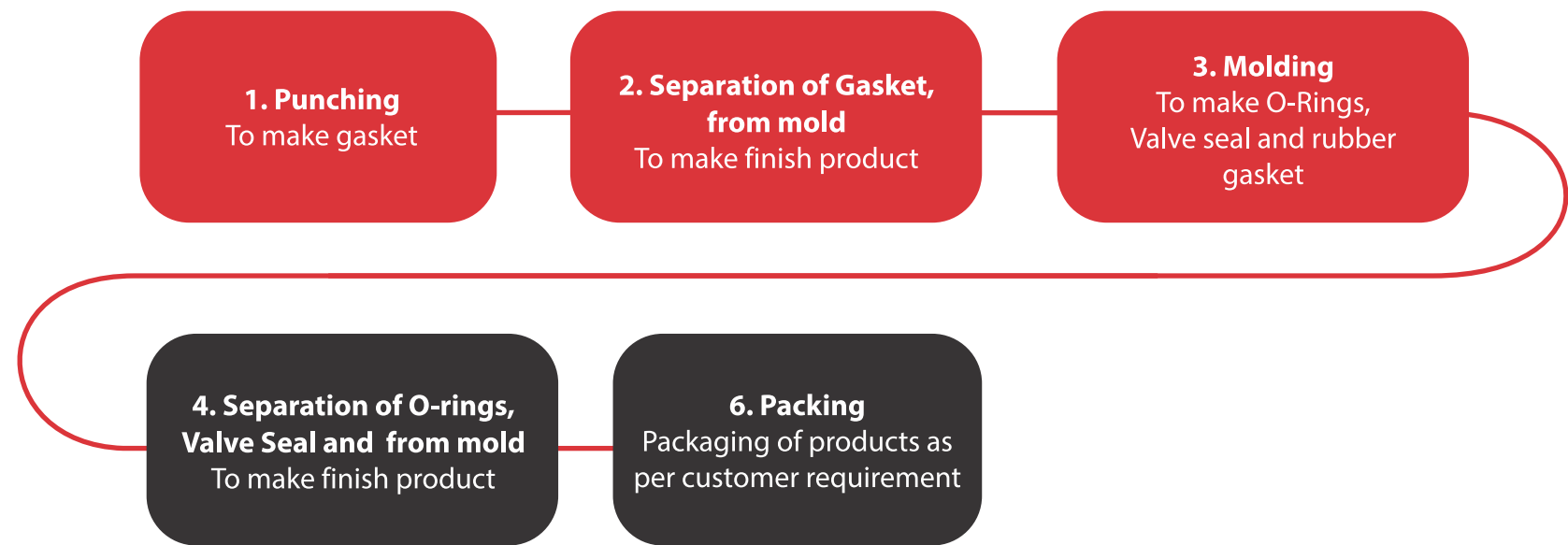
Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Manufacturing as per GB Standard	Punching	Semi automatic 200 Metric ton punching machine	Hand operated less weight punching machine	Flash free perfect profiles of Gasket
	Separation of Gasket	Manual	Manual	—
	Molding of Valve seal	Semi-automatic temperature controlled machine	Local Machine	Air bubbles free molding
	Packing as per model and requirement	Manual	Manual	—





We have a capacity of manufacturing 200 thousand units of Gasket a month. Not just a mere quantity, we manufacture for a wide range of models and our products compliment top global brands of motorcycles.

Our team of experts adheres to the highest standards of quality and safety to deliver the best. We have invested in high-level equipment enabling control on manufacturing processes, which assures good quality level.



Testing

We manufacture each part with utmost passion and care. Our products go through a variety of tests before they are sold.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Testing Standard	Incoming quality inspection	100% inspection of incoming raw material	No testing	Incoming parts are within tolerance limit
	Raw material test report	Incoming material test report with every lot	NA	Defect free raw material
	Hardness testing	Shore a hardness tester hardness should be between 40 to 90	No quality check, since it requires extra manpower/extra cost	100% assurance of correct goods
	Heat testing	Product should not deform at 300°C	No quality check, since it requires extra manpower/extra cost	Defect free product
	100% Final quality inspection	Visual final checking	Visual final checking	Defect free product



Rocker Arm

Product

Rocker arm is an oscillating lever in an engine. It's one end is raised which is lowered by a rotating lobe of the camshaft while the other end serves to work on a valve stem. We take care of the wear resistance with chilled cast iron along with heat treatment and attain just the perfect surface roughness by controlling metal cutting parameters.

Strengths:

- Perfect hardness
- Heat treated
- Trouble-free performance
- Bearing made in Taiwan

Features:

- Raw material used 20CrMo
- Hardness between HRC 60-62
- Carburizing depth of heat treatment 0.8 - 1.2m
- Surface roughness ≤ 0.2 RA
- Rocker arm ratio between 1.5 : 1.0 to 1.8 : 1.0

Raw Material

Our product is made from carbon steels by forging and casting process. Correct hardness and heat treatment cycle with accurately machined parameters ensures trouble-free performance of the product which is ensured by us. Rocker shafts of various types and are made from alloy steel. Below is a comparison on how we select raw materials for the product.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
BOP (Bought Out Parts)	Bearing	BOP	BOP	Bearing is from Taiwan, thereby maintaining OEM standards
BOP (Bought Out Parts)	Body	20CrMo steel grade raw material	Substandard steel grade raw material	1. High strength & high yield 2. High temperature resistance
	Bearing	Taiwan quality bearing	Chinese bearing	Our product offers exceptional mechanical properties like durability, comfort and longevity along with safe ride.



Manufacturing

With backward integration, We are capable of manufacturing rocker arms right from design and development to delivery. Our comprehensive PPAP capabilities lend us our edge. Our state of the art full gauge room comes with dedicated CMM fixtures, air gauges, dial bores, electronic bore gauges, etc. Each job has its own gauge box for quick and organized job launches. We also utilize gauge track as our gauge calibration tracking system. These excellent resources and thorough manufacturing result in a superior rocket arm.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Manufacturing	Machining	CNC machining centre	Semi Automated or Manual Machines	By using fully automated CNC machines, we offer min tolerance level products with negligible rejection at final stage.
	Design centre, Tool room and R&D facilities.	Inhouse Design centre, tool room and R&D centre	Not available with normal Chinese factories	We have an extra ordinary aptitude in developing customized formulations for Steel products. For Moulded products, we have in-house tool room with integrated facilities for mould design & mould manufacturing enabling quick lead time to customers.
	Forging	Automated process	Manual process	Automation results in relatively poor wear under heavy duty conditions and high friction levels
	Heat Treatment	In-house Heat treatment process	Outsourced in most of the factories	Grain alignment is done to give better raw material strength and reduce internal stress





We manufacture rocker arms in one type of finish:

- Original steel

Finishing is an imperative stage of the entire manufacturing process as this controls exhaust scavenging potential, in taking air command and translating camshaft movement into valve actuation.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Testing standard	Incoming Parts	100% Inspection & Testing	Random / No testing	Committed to offer same quality / specifications product with every lot
	In-process	In-house facility includes: -Random dimensional check with three axis coordinate measuring machine -Hardness test -Rocker arm ratio -Surface roughness test	Visual testing On demand testing from external agencies	1. Controlled standard parameters at every process 2. Three axis coordinate measuring machine 3. Hardness test – With the intention to make the metal the hardest, our HRC is 60-62. Longer carburizing times and higher 4. Surface roughness test – ours is exceptional = 0.2 RA 5. Rocker arm ratio – our lies between 1.5 : 1.0 to 1.8 : 1.0.
	Final Inspection	Fitment check using pneumatic gauge, hydraulic / electronic universal testing machines	Manual inspection	Ensures safe operation and adequate durability, we have both Electronic and Hydraulic universal testing machines (UTM) for testing the tensile strength and compressive strength of material used in manufacturing

Testing Lab

S. No.	Test Equipment Name
1	Friction material test machine
2	Compression testing machine
3	Precise surveying instrument
4	Electronic universal testing machine
5	Three-coordinates measuring machine
6	Constant speed friction tester
7	Precision salt spray test machine
8	Rockwell hardnessmeter
9	Electronic balance
10	Digital spring tension test
11	Hydraulic universal testing machine
12	Rockwell hardnessmeter
13	Feeler gauge
14	Infrared thermometer
15	Dial caliper



Dimensional test Reports

Name of Product	Rocker Arm	Material	20CrMo	Inspector	Deng Qiong
Model	Titan150	Production Mark	J	Inspector	Deng Qiong

No	Inspection Item	Inspection Item	Technical requirement	Test Result				
				1	2	3	4	5
1	Large aperture	Special sleeve plug	10+0.015	10.015	10.013	10.012	10.013	10.014
2	Total length	Micrometer calipers	20.7-0.1~20.7-0.25	20.52	20.55	20.52	20.5	20.54
3	Distance between screw hole to end	Height gauges	14.5+0.15	14.52	14.58	14.5	14.5	14.56
4	Distance between screw hole to end aperture	Special inspection tools	25.2+0.15	25.24	25.26	25.28	25.22	25.24
5	Parallelism of bearing and large aperture	Special inspection tools	0.02	0.01	0.012	0.015	0.016	0.012
6	Precision of thread	Thread plug gauge	M6x0.75-6H	Passed	Passed	Passed	Passed	Passed
7	Distance between surface of screw to large aperture	Special Inspection tools	8+0.2	Passed	Passed	Passed	Passed	Passed
8	Hardness of Screw head	Rockwell hardometer	62-67HRC	64	62	64	63	64
9	Hardness of Screw	Rockwell hardometer	20.30HRC	26	27	28	29	27
10	Hardness of surface	Rockwell hardometer	78-83HRC	80	80	81	82	80
11	Hardness of core	Rockwell hardometer	25-45HRC	44	44	44	44	44
12	Depth of harden layer	Metalloscope	0.3-0.5	0.4	0.4	0.4	0.4	0.4
13	Flexibility ratio of screw	By touch feeling	Smooth	Passed	Passed	Passed	Passed	Passed
14	Exterior	By eye-measurement	No burrs, no rifts	Passed	Passed	Passed	Passed	Passed



Connecting Rod



Product

Connecting rods are manufactured under stringent quality parameters that make us deliver the finest. Each element of the part, smallest to the most central element goes through numerous tests before the product is ready to be shipped.

We supply products, complete with crankpin, big and small end bearings.

Strength:

- 20cr mo steel grade raw material
- High strength and high yield
- High temperature resistance

Features:

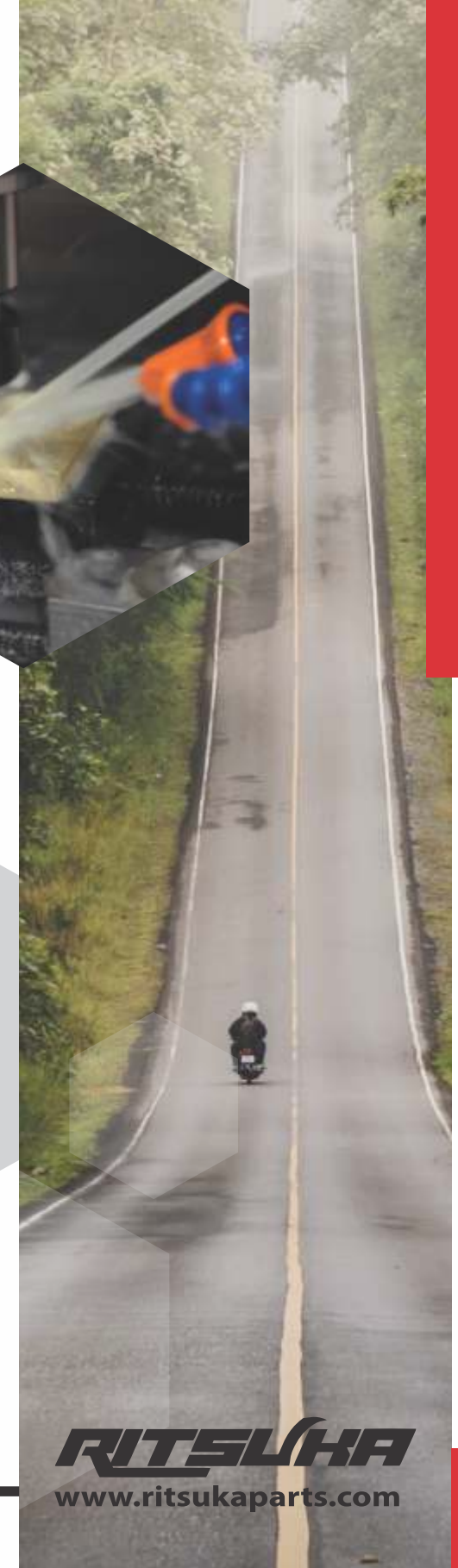
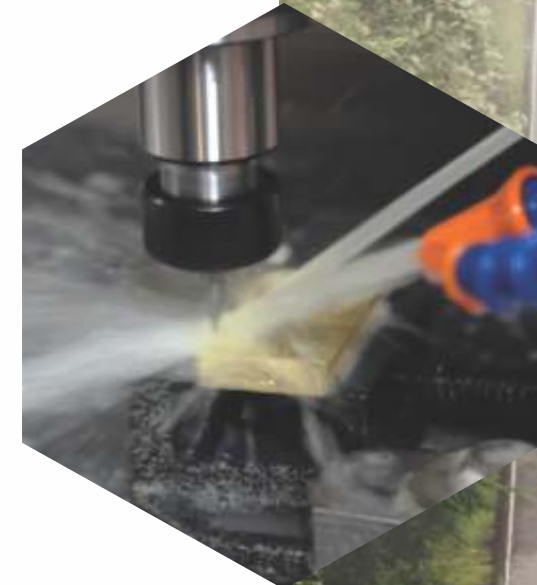
- Superior strength, durability and dimensional consistency
- Raw material used 20CrMo
- High strength and high yield
- Hardness between HRC 60-62
- Carburizing depth of heat treatment 0.8 - 1.2m
- Surface roughness ≤ 0.2 RA
- High temperature resistant
- Strong material case-hardened alloy steel
- Honing for better oil retention
- Carburized and honed pins
- Imported Taiwan bearings

Raw Material

We use latest and modern gas carburizing process for case hardening and heat treatment of our products. Our quality control system and equipment ensures perfect geometrical and dimensional accuracies and our durability lies at our core with usage of high quality alloy steel.



Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
BOP (Bought Out Parts)	Bearing	BOP	BOP	Bearing is from Taiwan, thereby maintaining OEM standards
Raw Material	Body	20CrMo Steel grade Raw Material	Substandard Steel Grade Raw Material	1. High strength & high yield 2. High temperature resistant
	Bearing	Taiwan Quality Bearing	Chinese Bearing	We offer exceptional mechanical properties like durability, comfort and longevity along with safe ride.



CONNECTING ROD



Manufacturing

From the smallest to the most central element, each part is manufactured under stringent quality parameters that make us deliver the finest. We make your ride the smoothest by putting our products through rigorous checks before shipping.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Manufacturing	Machining	CNC machining centre	Semi Automated or Manual Machines	By using fully automated CNC machines, we offer min. tolerance level products with negligible rejection at final stage.
	Design centre, Tool room and R&D facilities.	In-house Design centre, tool room and R&D centre	Not available with normal chinese factories	We have an extraordinary aptitude in developing customized formulations for steel products. For moulded products, We have an in-house tool room with integrated facilities for mould design & mould manufacturing enabling quick lead time to customers.
	Forging	Automated forging process	Manual forging process	Automation results in relatively poor wear under heavy duty conditions and high friction levels
	Heat Treatment	Inhouse Heat treatment process	Outsourced in most of the factories	Grain alignment is done to give better raw material strength and reduce internal stress

Testing

We rigorously test the product post production to ensure it exceeds the highest quality standards.

- Measurement and materials testing to determine whether the crank is as per specification.
- Testing is done via our in-house dyno- facility and compared against the OE benchmarks

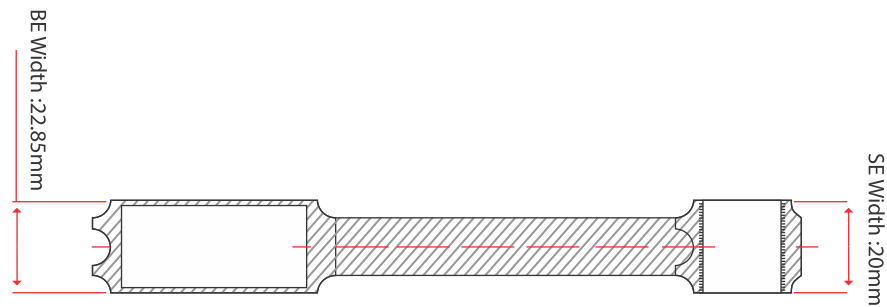
Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Testing Standards	Incoming Parts	100% Inspection & Testing	Random / No Testing	Minimal chances of In-house rejection levels pre-finished / finished product
	In-process	In-house facility includes • Material composition test • Random Dimensional check with Three axis coordinate measuring machine	Visual testing On demand testing from external agencies	1. Controlled Standard Parameters at every process 2. Three axis coordinate measuring machine 3. 0.002 mm ~ 0.003 mm tolerance range is maintained
	Final Inspection	Fitment check using pneumatic gauge, Hydraulic / Electronic Universal testing	Manual inspection	Ensures safe operation and adequate durability. We have both electronic and hydraulic universal testing machines (UTM) for testing the tensile strength and compressive strength of material used in manufacturing



Precision

We ensure high standards of reliability, safety and service life. Our commitment to quality, from research and development through the entire production process to logistics and customer service, has been approved by quality management audit. The perfection, we achieve is the result of consistent precision that we live by at every stage of our production.

CONNECTING ROD TEST REPORT					
Part	5D9 Con Rod	Sample Qty	2	Manufacturer	Ritsuka



S.no	Technical Requirement	Standard	Test Method	Detection Result	Conclusion
1	Appearance Check	--	Visual	OK	OK
2	Small Head thickness	± 0.05	Micrometer	-0.002	OK
3	Small hold roughness	0.4 MAX	Roughness Instrument	0.24	OK
4	Aperture of small hole	$\varnothing 13 \pm 0.25$	Air momentum meter	0.19	OK
5	Orifice roundness	0.003	Air momentum meter	0.026	OK
6	Pinhold cylindricity	0.003	Air momentum meter	0.017	OK
7	Big hold roughness	0.2 MAX	Roughness Instrument	0.14	OK
8	Aperture of Big hole	$\varnothing 35 \pm 0.04$	Air momentum meter	0.007	OK
9	Macropore Cylindricity	0.003	Air momentum meter	0.018	OK
10	Thickness of large head	14 ± 0.05	Air momentum meter	0.024	OK
11	Centre distance	3.5 ± 0.05	Vernier Caliper	-0.002	OK
12	Carbon Depth	0.8-1.1mm	Microscope	0.86	OK
13	Surface Hardness	59-63HRC	Micro hardness tester	59.5	OK
14	Core Hardness	28-43HRC	Micro hardness tester	34	OK



Valve



Product

Our lightweight engine valves offer better engine performance, improved fuel efficiency to meet the changing emission norms. It improves fatigue and corrosion resistance due to higher case depth of nitride valves. All our valves are duly heat treated, thereby increasing toughness and wear resistance on stem and seating areas. These valves are made from OEM specifications with proper testing that undergo 100% inspection for critical characteristics. They also undergo 100% crack detection.

Strengths:

- High strength silicon alloy
- Vacuum build up welding
- Raw material grade En52
- 1hr at 650°C tempering
- Ultrasonic wave fault detection method

Features:

- Vacuum build up welding
- Satellite alloy with wear-impact-resisting property
- Raw material grade SCr21Mn9Ni4n exhaust valve
- Tempering for 1hr at 650°C
- Inlet 4Cr10Si2MO

Raw Material

We use high strength silicon alloy – EN52 as the basic manufacturing material.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
BOP (Bought Out Parts)	Steel Alloy	BOP	BOP	We use high quality Silicon Alloy
Raw Material	Body	High Strength Silicon Alloy EN52	Substandard EN52	Our valves withstand extreme temperatures, pressures and hitting impact.

Manufacturing

Designed using latest technology, our valves are made from first-rate materials. Some of the chief characteristics of our products are high strength and durability and effective performance. Moreover, we ensure delivery of our products within stipulated time frame. Also, we provide tailor-made services as per the requirements of our esteemed clients.

Fabricated using:

- Latest technology
- Special grade casting (valve guide) and steel material (valves)
- Machined, hardened and finished accurately using machines and instruments of latest technology.



Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Manufacturing	Machining	CNC machining center	Semi Automated CNC or Lathe machines	By using fully automated CNC machines, we offer min tolerance level products with negligible rejection at final stage
	Design centre, Tool room and R&D facilities.	In-house Design centre, tool room and R&D centre	Not available with normal Chinese factories	We have an extraordinary aptitude in developing customized formulations for Steel products. For moulded products, we have in-house tool room with integrated facilities for mould design & mould manufacturing enabling quick lead time to customers.
	Vaccum Welding	We use vacuum welding that is a solid-state welding process where there's no fusion/heating at the interface of the two parts.	Not available with normal Chinese factories	
	Tempering	1 hr at 650 degree Tempering	No Tempering	Tempering reduces the hardness in the material and increases the toughness. Through tempering we maintain materials properties (hardness/toughness ratio) to a specified application.
	Moulding	Automated moulding process	Manual Moulding process	Automation results in relatively poor wear under heavy duty conditions and high friction levels
	Heat Treatment	3 Step In-house heat treatment	Outsourced in most of the factories	Grain alignment is done to give better raw material strength and reduce internal stress





We offer two types of valves. The valve that allows mixture into the cylinder is the inlet valve. The one through which the spent gases escape is the exhaust valve. They are designed to open and close at precise moments, to allow the engine to run efficiently at all speeds. The design of engine valves ensures meeting thermal and mechanical strength requirements, wear and durability targets. The surface treatments, coating and surface finish ensures higher durability. Along with the finish, use of special materials in tip, valve stem and seats are also a part of the process completion.

Testing

Our engine valves are manufactured under strict quality control norms laid down by ISO 9001 following the specification tests of required tolerance before dispatching to market. The grain flow detection by micro tech examination, crack-detection and microstructure tests compulsorily go through to make sure that our products maintain highest standards of quality. We coat each valve with suitable anti-corrosive oil and wrap it in anti-rust paper to prolong the life. We put highest emphasis on ensuring the quality of its products. Our valves have quality assurance plan in accordance with TS Certification.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Testing Standards	Incoming Parts	100% Inspection & Testing	Random / No Testing	Committed to offer same quality / specifications product with every lot
	In-process	In-house facility includes 1. Material composition test 2. Random Dimensional check with Three axis coordinate measuring machine	1. Visual testing 2. On demand testing from external agencies	1. Controlled standard parameters at every Process 2. Three axis coordinate measuring machine 3. Tolerance range maintained at 0.002 mm ~ 0.003 mm 4. Our tests allow better detection of internal flaws, allowing us to generate perfect parts. Air tightness test determines the level of uncontrolled air flow through gaps or cracks in the metal body.
	Final Inspection	Fitment check using pneumatic gauge, Hydraulic / Electronic Universal testing	Manual inspection	Ensures safe operation and adequate durability, we have both electronic and hydraulic universal testing machines (UTM) for testing the tensile strength and compressive strength of materials used in manufacturing

While the design of engine valves ensures meeting thermal and mechanical strength requirements and wear and durability targets. The surface treatments, coating and surface finish ensures higher durability. Along with the finish, use of cobalt alloy in tip, valve stem and seats are also a part of the process completion. Effects of various design parameters are studied through a simulation tests. Various solutions are also evaluated based on performance and cost. So our finishing lends us more quality to perfecting a spare part.

Dimensional Test Report

Model	CG125		P. NO.		Inspected	
Item Name	IN. Valve		QTY	5	Confirmed	
Item No.			Inspection QTY :	5	Checked	
Material	4Cr10Si2Mo		Date:- 12Dec2017		Conclusion	Qualified



Dimensional Test Report

S.NO.	Inspctions Item	Qualification	Tool	Resualt			Conclusion
				1	2	3	
1	Crack detection	No crack	Fluorescent fault detector	no crack	no crack	no crack	Qualified
2	In the face of the taper face rod axis oblique runout tolerances	=0.03 mm	Micrometer gauge	0.02 mm	=0.01 mm	=0.02 mm	Qualified
3	Metallographic	JB/6720-93	Metallographic microscope	Qualified			Qualified
4	Depth of tungsten chromium alloy surfacing	1.20 -1.50 mm	Calipers	Qualified			Qualified
5	Metal macro organization	JB/6720-93	Acid Washing/Visual	Qualified			Qualified
6	Roundness Of Rod	0.005 mm	Micrometer gauge	= 0.002 mm	=0.003 mm	=0.004 mm	Qualified
7	Straightness Of Rod	=0.005 mm	Micrometer gauge	=0.004 mm	=0.002 mm	=0.001 mm	Qualified
8	Diameter deviation	=0.005 mm	Digital display micrometer	=0.002 mm	=0.004 mm	=0.004 mm	Qualified
9	Taper Face Height	0.7±0.15	GO-NO GO FIXED GAUGES	Qualified			Qualified
10	Rod Hardness	Surface	= HV 0.2 600	Vickers Hardness Tester			Qualified
		Inside	HRC 30-40	Rockwell Hardness Tester	37	36	35
11	End Face Harness	HRC 50-60	Rockwell Hardness Tester	56	54	55	Qualified
12	Rod Diameter	5.450-5.465 mm	Digital display micrometer	5.454	5.457	5.461	Qualified
13	Taper Face Angle	90°-91°	Goniometer	90'	90'	90'	Qualified
14	Taper Face Surface Roughness	Ra 0.4	Roughness Sample	0.4	0.4	0.4	Qualified
15	Rod end face to face stem axis circular runout tolerances	=0.03 mm	Micrometer gauge	0.01	0.01	0.01	Qualified
16	End Surface Roughness	Ra0.4	Roughness Sample	0.4	0.4	0.4	Qualified
17	Rod Roughness	Ra0.4	Roughness Sample	0.4	0.4	0.4	Qualified
18	Clip Concave Diameter	4.65-4.70	GO-NO GO FIXED GAUGES	4.66	4.67	4.68	Qualified
19	Length	93.3 ± 0.15	Calipers	93.36	93.35	93.38	Qualified
20	The symmetry of the pin hole axis to the axis of the rod	=0.05 mm	Calipers	0.03	0.02	0.04	Qualified
21	Surface	Fault-free	Visual	Fault-free			Qualified
Conclusion				Qualified			



Carburetor



Product

We manufacture high performance carburetors that offer optimum quality to match your perfect ride.

Our strong zeal to continue as a quality driven organization coupled with innovative initiatives in product development ensure products are accepted and preferred by our customers all across the globe. We derive our craftsmanship and superiority from the highest standards of quality and safety we adhere to every single time.

We dream to lead the way to a better and safe future with our reliable and cost effective product- carburetor.

Strengths:

- Economical fuel consumption
- In-house quality testing
- ~100,000 units/month Production capacity
- Adequate production lead time
- Streamlined production processes
- Availability of wide range of carburetors.

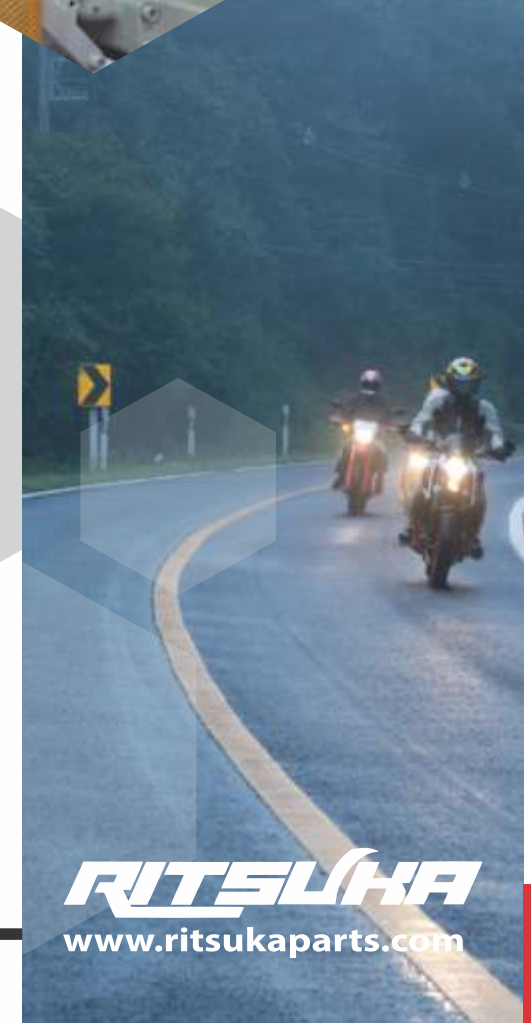
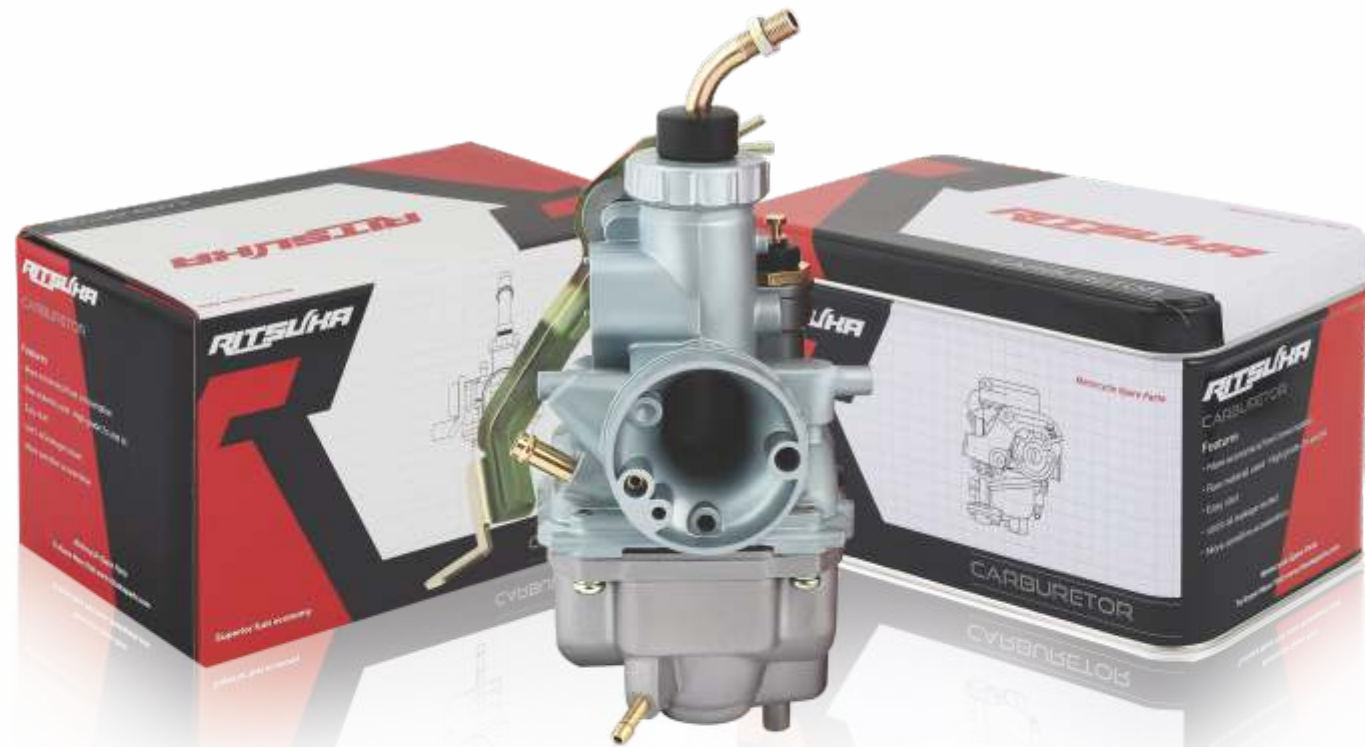
Features:

- Raw material used: ADC-12 and zamak
- 100% oil leakage tested
- Low fuel consumption
- Most Stable running



Raw Material

We use ADC 12 and Zamak alloy as raw materials. ADC12 that has high copper percentage. In simple words it means, exceptional durability and longevity. ADC 12 increases the resistance of a material. Both cast and wrought aluminum-copper alloys respond to solution heat treatment and subsequent aging with an increase decrease in elongation.





Raw material specifications

- Lightweight and structural material
- Resistance to corrosion
- Endures high temperatures

S.no	Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
1	Bought Out Parts (BOP	Main jet	In-house	Outsourced	In-house manufacturing ensures better quality control on produced parts
		Throttle valve	In-house	Outsourced	
		Jet needle	In-house	Outsourced	
2	Raw material	Outer body	High grade ADC12 with copper content of 1.65%/High grade Zinc	Substandard ADC12 with copper content of 0.5-0.8% which is below international standards	1. Increased wear resistance 2. Long term dimensional stability 3. Reduced wear and tear
		BOP	Brass alloy	Alloy mix	

Composition of ADC-12

Metal	Si	Fe	Cu	Mn	Mg	Ni	Zn	Sn	Al
%	9.6~12	1.3 max	1.5~3.5	0.5 max	0.3 max	0.5 max	1 max	0.3 max	Balance

Another most important raw material used is Zinc. Zinc alloy used for making carburetor is known as Zamak 3. It is the first choice when considering zinc for die casting for a number of reasons.

- Excellent balance of desirable physical and mechanical properties.
- Superb castability and long-term dimensional stability.
- Excellent finishing characteristics for plating, painting, and chromate treatments.
- Achieve high levels of accuracy.
- Exhibit increased wear resistance.

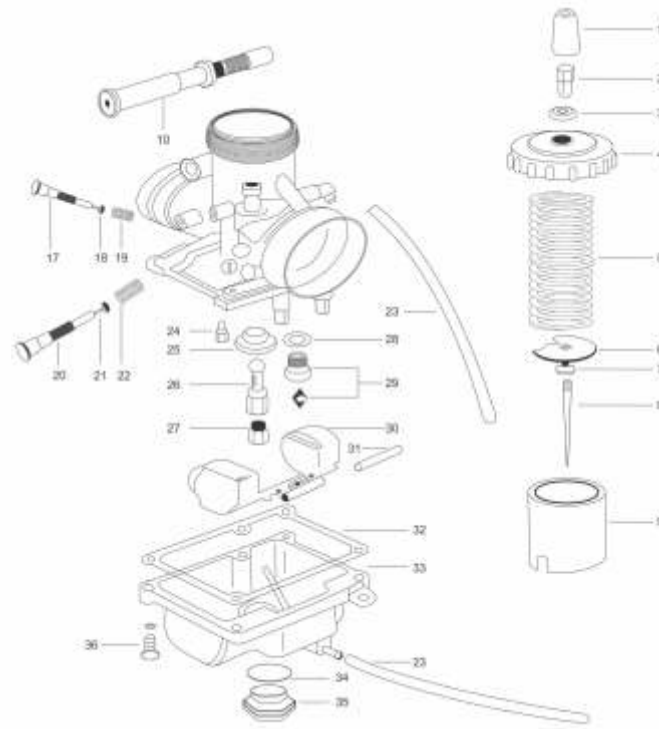
Composition of Zamak 3 :

Metal	Ai	Cu	Mg	Fe	Pb	Cd	Sn	Zn
%	3.5~4.3	0.25	0.02~0.05	0.1 max	0.005 max	0.004 max	0.003 max	Balance



Manufacturing

Our carburetor is designed to mix just the right amount of fuel with air so that the engine runs properly. The ratio should not be more than 20:1 and not less than 8:1. The ideal ratio is 15:1. If there is not enough fuel mixed with the air, the engine 'runs lean' and either will not run or potentially damage the engine. We attain just the perfect level. Hence, we focus on the manufacturing process to avoid engine problems.



S.no	Description
1	Rubber Cap
2	Cable Adjuster
3	Locknut, Cable Adjut.
4	Mixing Chamber Top
5	Spring, Throttle valve
6	Seat Plate, spring
7	E-ring, Jet Needle
8	Throttle valve 1.5
9	Starter plunger assembly
11-16	N/A
17	Air screw
18	O-Ring, Air Screw
19	Sprint, Air screw
20	Idle Adj. Screw
21	O-Ring, Idle Ajd. Screw
22	Spring, Idle Ajd. Screw
23	3MM ID vent Hose
24	Pilot Jet
25	Main Jet ring
26	Needle jet 0-0 332
27	Large hex main jet
28	Washer, Needle valve seat
29	Needle valve jet (2.5)
30	Float
31	Float pin
32	Float bowl gasket
33	Float bowl
34	O-Ring, drain plug
35	Drain plug
36	Screw 4 X 16mm, Float bowl
37	Top cap gasket (Not shown)

S.no	Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
1	Manufacturing Process	Die casting	In-house	Outsourced	In-house manufacturing ensures better quality control on produced parts
		Child part	Mostly In-house	Outsourced	Stringent control over child part
		Assembly	In-house	In-house	Quality product



CARBURETOR



Manufacturing a carburetor

1. Die Casting
According to the model

2. Deburring
To make the metal surface more smooth

3. Cleaning
To make the inner & outer body clean after deburring

4. Oxidation
Two kinds of materials aluminum and zinc oxide passivation

5. Air Cleaning
To make the outer body clean after oxidation

6. Machining
Includes series of drilling operations to make mould to precise size

7. Assembly Line
Assembly of all parts

8. Assembly Line
Speed power and tightness of each carburetor should be tested by machines, to ensure no oil leakage.

9. Testing
Testing as per international standards

10. Packing
Packaging of products as per customer requirement



Testing

We give emphasis on perfection and timely delivery. Every piece is manufactured to attain highest quality owing to our many checks and tests at every step.

Performance Test

Each part manufactured is checked for performance.

S.no	Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
1	Testing Standard	Performance test	In-house	Requires engine to perform the test .	All tests are performed as per GB standards to ensure defect free product

Material Test

S.no	Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
1	Testing Standard	Performance test	In-house	Requires engine to perform the test .	All tests are performed as per GB standards to ensure defect free product

Leakage test

Each carburetor is tested to check the oil leakage.

S.no	Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
1	Testing Standard	Oil test	In-house	Partial	All tests are performed as per GB standards to ensure defect free product



Clutch Friction Plate



Product

We manufacture clutch plates for vehicles starting from 50 cc to 220 cc. Right from raw materials to manufacturing, our friction plates are topnotch in every aspect. Every spare part we manufacture ensures to give you a perfect riding experience. Our clutch plates are unmatched in terms of reliability, durability and performance as they adhere to the strict industrial standards and include genuine components.

Features:

- High and stable friction levels
- Very good fade resistance
- Superior surface furnish for better torque performance
- Better durability
- Anti-corrosive
- Wet operation
- Smoother gear shift
- Stable Coefficient of friction

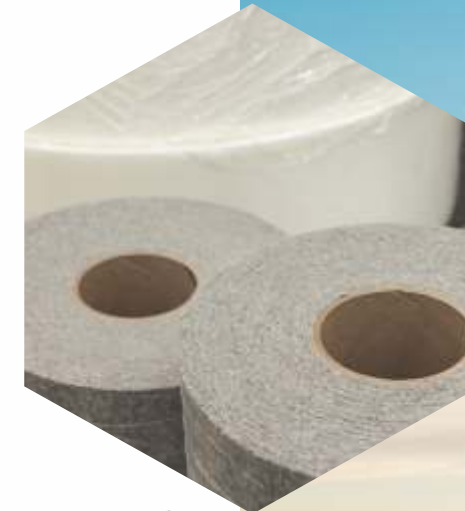
Raw Material

Our friction plates are made of high carbon steel and the core plates are made from aluminum, steel, high temperature resistant plastics, or phenol resin based fiber depending on the design of the clutch.

Friction material is lined on the core plates to generate the torque in the engine. The clutch works on the principle of friction. Two friction surfaces are brought in contact with each other; when applied a force during engagement, here they are united due to the friction between them and transmit power from engine to the gear box and subsequently to the driven wheels.



Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Raw Material	Aluminium Body	High grade ADC12 with copper content of 1.65%	Substandard ADC12 with copper content of 0.5-0.8% which is below international standards	We offer ECE-R90 certified formulation with high copper content means exceptional mechanical properties like durability, comfort and longevity along with safe ride.
	Lining	Non-Asbestos formation with special Fibre material	With Asbestos formation	We offer environment friendly Non-asbestos friction material as asbestos material has been banned in most of the countries.





Manufacturing

We derive our superior quality with precision at every stage of production. The ADC 12 raw material yields us the high non- asbesto strength and another factor that leads to high demand of our spare part is usage of environmentally friendly Nonasbestos friction material, as Asbestos is banned in many countries. Our patented material flaunts excellent performance and most competitive prices. Our quality is accepted by OEM manufacturers as well, and our factory direct selling prices help us contain our prices in this very competitive market. We take pride in our massive production capacity of around 50,000 sets per day and an extensive range of 150 models. Yet our streamlined production processes ensure 100% customer satisfaction and unmatched quality.

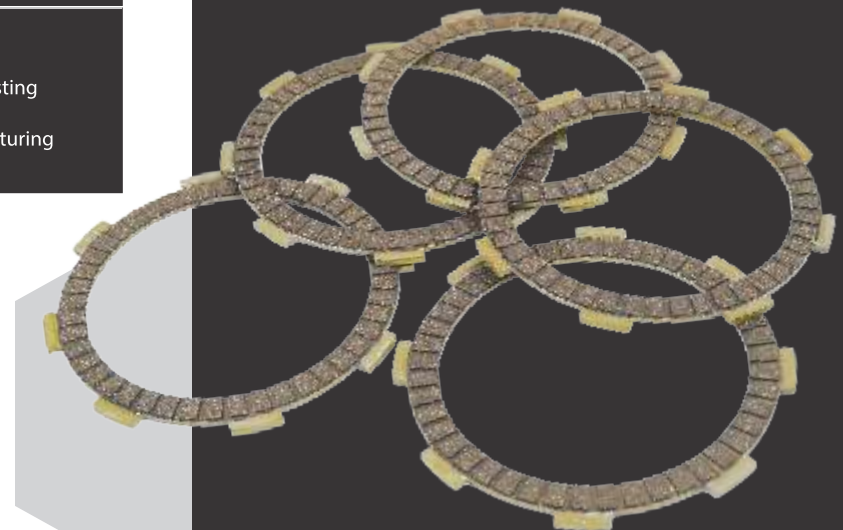
Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Manufacturing	Production Technology	Automated casting machines	Semi Automated Casting machines	By using fully automated CNC machines, we offer min. tolerance level products with negligible rejection at final stage.
	Design centre, Tool room and R&D facilities.	In-house design centre, tool room and R&D centre	Not available with normal chinese factories	We have an extraordinary aptitude in developing customized formulations for friction products. For die -casted products, tve have an in-house tool room with integrated facilities for die design & die manufacturing enabling quick lead time to customers.
	Moulding	Automated moulding process	Manual Moulding process	Automated moulding results in relatively poor wear under heavy duty conditions and higher friction levels
	Heat Treatment	In-house Heat treatment process	Outsourced in most of the factories	Grain alignment is done to give better raw material strength and to reduce internal stress



Testing

The finished clutch friction plates are made to undergo various checks and tests to ensure precision and quality are attained at every level, in best way possible. For your trust and safety, we always go an extra mile and recheck our passion. Each of the Clutch Friction Plate is evaluated on following parameters, before they make way to market and to you.

Parameter	Details	Ritsuka	Chinese Product	Ritsuka Advantage
Testing Standard	Incoming Parts	100% Inspection & Testing	Random / No Testing	Committed to offer same quality / specifications product with every lot
	In-process	In-house facility includes <ul style="list-style-type: none"> • Material composition test • Random Dimensional check with: <ul style="list-style-type: none"> - Three axis coordinate measuring machine - Coefficient of Friction test - Wear Rate Test 	Visual testing On demand testing from external agencies	<ol style="list-style-type: none"> 1. Controlled standard parameters at every process 2. Three axis coordinate measuring machine 3. 0.002 mm ~ 0.003 mm tolerance range is maintained 4. High coefficient of friction ~ 0.33-0.40 5. Excellent wear at lower temps. < 200C
	Final Inspection	Fitment check using pneumatic gauge, Hydraulic / Electronic Universal testing	Manual inspection	Ensures safe operation and adequate durability we have both electronic and hydraulic universal testing machine (UTM) for testing the tensile strength and compressive strength of materials used in manufacturing





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