

= Imme R100 =

The Imme R100 was a lightweight motorcycle made by Riedel AG from 1948 to 1951 . It is noted for its simple and innovative design with many advanced features . With low cost and technical innovation , the R100 sold well , but reliability problems and low profit margins resulted in warranty costs driving Riedel AG into bankruptcy .

The advanced specification of the Imme R100 caused it to be highly regarded . The R100 was one of the motorcycles included in " The Art of the Motorcycle " exhibition at the Solomon R. Guggenheim Museum in 1998 and is on permanent display at Barber Vintage Motorsports Museum .

= = Concept , design and engineering = =

Motorcycle engineer Norbert Riedel recognized the need for a simple and economical light motorcycle during Germany 's recovery from the Second World War and began to design one . By the summer of 1947 , a prototype frame had been built and tested . The spine frame was made from 40 mm steel tubing , as were the steering head , the single @-@ sided front fork , and the single @-@ sided swingarm . The wheels were interchangeable , and were mounted from the left on stub axles attached to the suspension on the right .

Riedel developed the engine at the same time . This was a piston @-@ ported two @-@ stroke single @-@ cylinder engine of 99 cc (6 @. @ 0 cu in) capacity . The engine was cast in light alloy around the cylinder liner , and had an integral cylinder head . The crankshaft was suspended on only one side . The power output of the engine was 4 @. @ 5 PS (3 @. @ 3 kW ; 4 @. @ 4 hp) at 5 @, @ 800 rpm , which was considered a high output at the time . Contemporary engines of comparable size typically made about 2 @. @ 5 PS (1 @. @ 8 kW ; 2 @. @ 5 hp) , and 4 @. @ 5 PS was expected from 125 cc engines such as those used in the DKW RT 125 and the later Hoffmann Vespa .

The transmission had three speeds with no neutral position ; a mechanism held the clutch open when the motorcycle was at idle in first gear . First gear was positioned in the middle of the shift pattern , with second gear below and third gear above .

The engine and transmission were mounted together on the swingarm in front of the pivot axle at the bottom of the spine frame . The near @-@ horizontal engine and transmission together as a unit formed a " power egg " style which would later be used by Benelli and Motobi . The tubular swingarm also served as the exhaust pipe . Behind the pivot axle , the swingarm , the reinforced rear fender , and the supports for the rear carrier formed a triangular structure which supported the rear spring . This suspension system allowed a long suspension travel and a soft spring rate . Test rides on the complete prototype began in December 1947 and showed that the combination of long travel and soft springs needed damping . Friction dampers were added .

= = Production , marketing and demise = =

Norbert Riedel registered Riedel AG in 1948 . He moved his facilities from Muggendorf to Immenstadt and began production there in June 1948 . It is widely believed that the name " Imme " came from an abbreviation of this location , and that the Imme 's " bee on wheels " logo came from " Imme " being a dialect word meaning " bee " . However , it has also been suggested that the name came from the motorcycle itself resembling a bee , or from the engine sounding like a buzzing bee .

The Imme R100 's light weight , relatively powerful engine , and long travel suspension made it popular in motorsport ; this , along with good marketing and low pricing , led to strong sales . The management of Riedel AG expected high sales volume to offset the low profit margin . A basic Imme sold for 775 Deutschmark without battery , tachometer , or centre stand . Passenger accommodation was an optional extra , as was a spare wheel . Initially , Immes were all painted oxide red .

In 1950 , a better @-@ equipped " Export " version became available for 850 Deutschmark with a

battery , an electric horn , a centre stand , a speedometer , a more comfortable seat , chrome plating , pinstriping , and a choice of colours including lime green and gloss black . Production of the Imme R100 had gone up to 1 @, @ 000 per month and , by the autumn of 1950 , more than 10 @, @ 000 had been sold .

Imme engines were also sold to Fritz Fend , to power his Fend Flitzer invalid carriages . These replaced the Fichtel & Sachs engines used in earlier versions of the Flitzer .

However , the Imme began to develop problems , especially with the single @-@ sided crankshaft bearings and the freewheel for the kick starter . Riedel corrected the problem beginning with the Model D version , which had a conventional crankshaft with two bearings . However , the profit from sales was not enough to cover the warranty expenses , and , by the end of 1950 , Riedel AG went bankrupt with debts of 1 @. @ 25 million Deutschmark .

= = Legacy = =

At the time of Riedel AGs bankruptcy , three prototypes of an Imme with a 150 cc parallel twin two @-@ stroke engine had been made . Fritz Philipps , who had been a senior executive at Riedel AG , formed Zweirad @-@ Motoren und -Getriebe GmbH (ZMG) to supply parts and perform repairs on Imme motorcycles . ZMG also set up to manufacture an Imme with a 175 cc straight @-@ twin two @-@ stroke engine , but made only 25 before they ended production .

The Imme R100 is noted for its simple and innovative design . Its advanced features include single @-@ sided suspension front and rear , interchangeable wheels front and rear with the option of a spare tyre , the complete drivetrain mounted on the swingarm , and the swingarm tube used as the exhaust pipe . Remarking on the R100 being displayed in the Solomon R. Guggenheim Museum exhibition " The Art of the Motorcycle " , Ultan Guilfoyle , curatorial adviser at the museum , said : " It 's my favourite unknown bike . There are ideas there that are 40 years ahead of their time . " An R100 is on permanent display at the Barber Vintage Motorsports Museum .