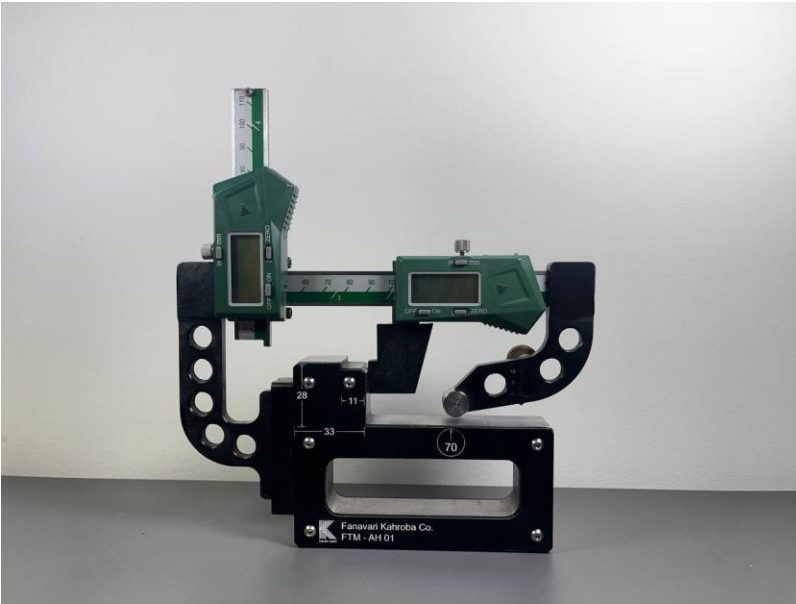




Rail Way Wheel Parameters Caliper

FTM-AH-01

Users Guide



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Rail Way Wheel Parameters Caliper

Introduction

The paC-oW2M is used to measure the wheel parameters of train and tram wheels.

Wheel parameters are;

change Thickness (dF

change Height (HF

change Factor (flange wearF

change Tread Conicity (p%F

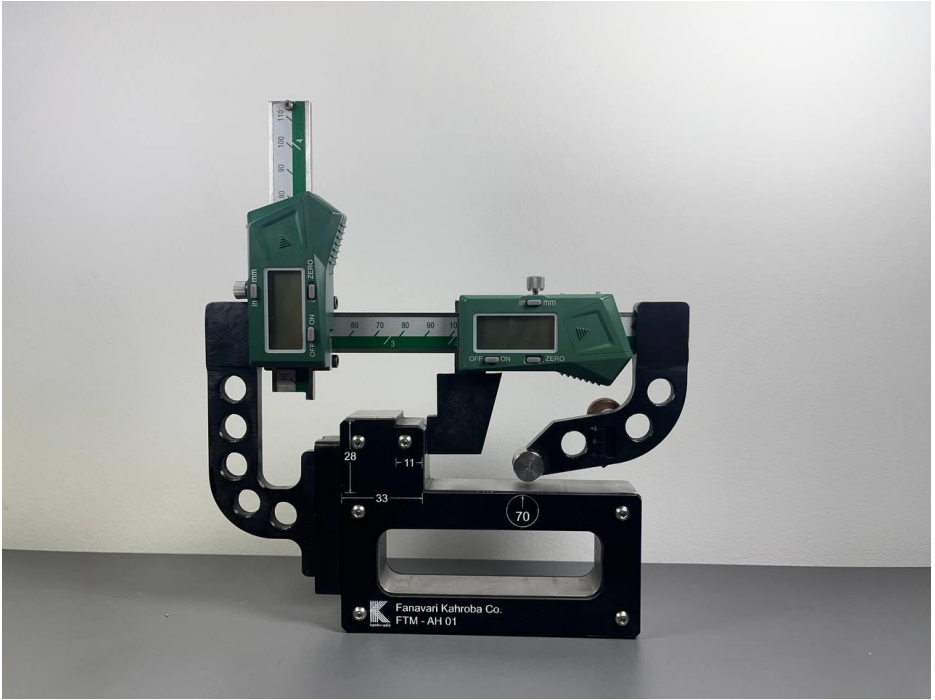
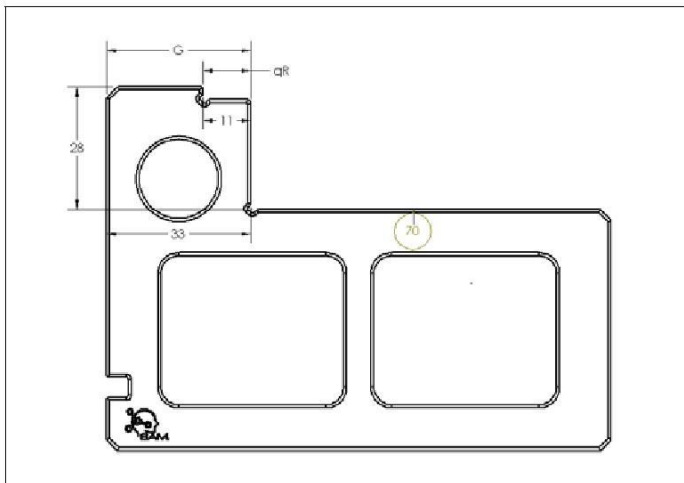


Figure 1

Measurement

- 1F The surface where the caliper magnets attached must be smooth, without defects and clean than allowing fix well the instrument
- 2F fix the caliper to the wheel (by means of magnets)
- 3F Move the caliper until roller bracket touches the tread.
- 4F Move the horizontal slider until its jaw touches the flange and then use the locking screw to fi the position.
- 5F move the vertical rule until its contact point touches the top of the flange and at the same time touches the flange 2mm below of the top.
- 6F fix the position of second horizontal slider(corresponding to vertical rule) with its locking screw
- TF fix the position of vertical rule with its locking screw.
- 8F oemove the caliper. read on the horizontal display flange thichness and flange hight on the vertical one.
- 9F after reading (and writing down) parameters press zero key on the horizontal display and than unlock the horizontal slider. move the horizontal reader just to toch the vertical slider. now you can read qo factor (with minus sign).



Figure

Wheel parameters

A) Flange thickness (G)

Flange thickness of flange width. Width parameter d is measured 10mm over the wheel diameter. see figure3.

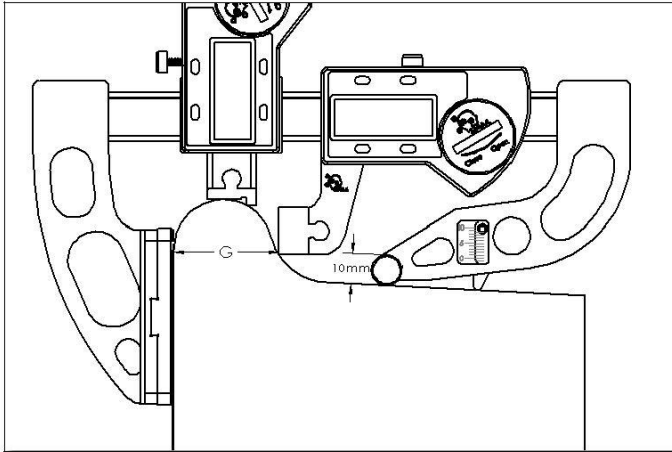


Figure 3

B) Flange height (H)

Flange height is the difference between the maximum wheel's diameter and the diameter measured 70mm away from the wheel's inner face. see figure 4.

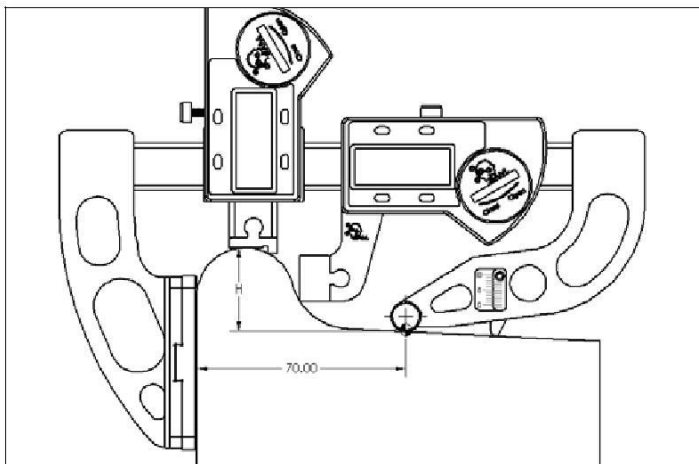


Figure 4

C) qR factor

qR factor is a measure that serves to evaluate wheel s wearing. qR is the distance between the plane that contains maximum radius minus 2 mm the plane that contains wheels nominal radius plus 1M mm. see figure 5.

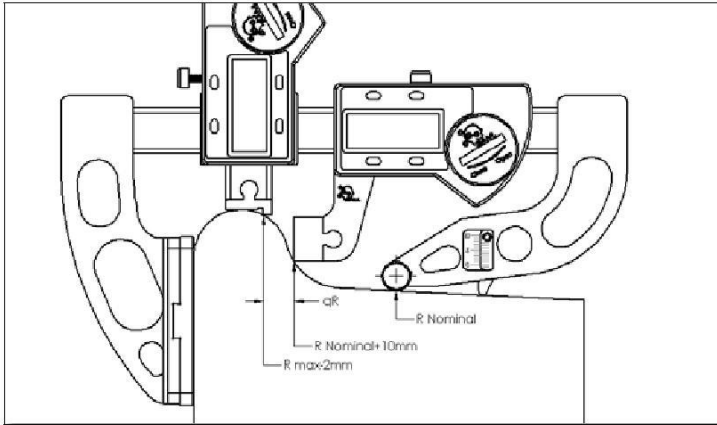


Figure 5

D) Tread Conicity (p %)

o railway wheel treads are conical.this conicity is measured as a %. bexample: let the wheel

radius r mm smaller than nominal radius measured at F mm.then tread slope is,pee figure6

$$p\% = \frac{r}{F} \times 100$$

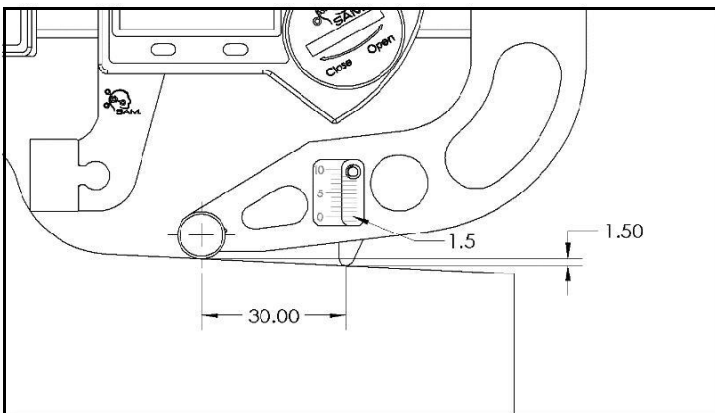


Figure 6



Technical information

Flange thickness measurement resolution (dF): M.M1 mm

Flange height measurement resolution (HF): M.M1 mm

qo factor measurement resolution: M.M1 mm

Working temperature: C o C

Note: measurement error should be max M.M1mm but due to misalignment when the operator fix the caliper with its magnets on the wheel and other factors, uncertainty should be M.M3 mm.

53M gr	Caliper net weight:
TMM gr	square weight:
2.1 kg	Total weight (with caseF)

Notes

-As can be seen in the figure, on the horizontal rule there is a digital reader that indicates the distance d (flange thicknessF measured 1Mmm over the nominal wheel radius. The distance between roller bracket contact point and wheel inner face is TMmm.

-The vertical reader measures flange height (HF).Vertical rule must touch the top of the flange and at the same time must touch the flange 2mm below of the top. see figure.

-When d and h parameters has been measured we can option qo factor by doing zero on the horizontal reader and moving it backwards to touch the vertical slider.

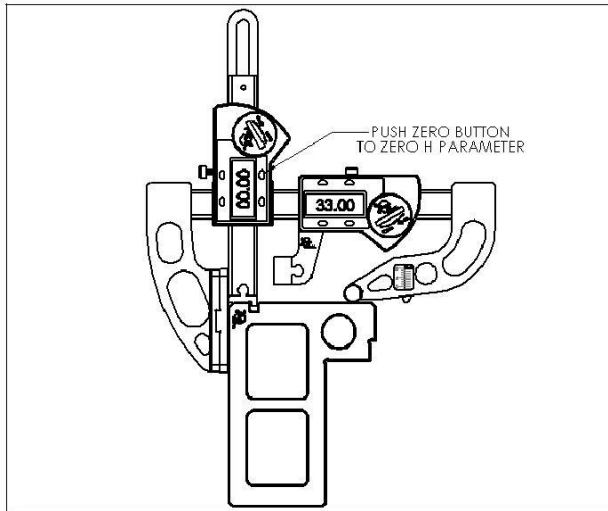
-Conicity can be optioned as indicated in figure 5

-the square has distances engraved (d,H and qoF that are used to calibrate the readers. see figure

-digital reader have not adjustment then the square is used to control that caliper has no deformations. pee figure 6.

Zero set H scale

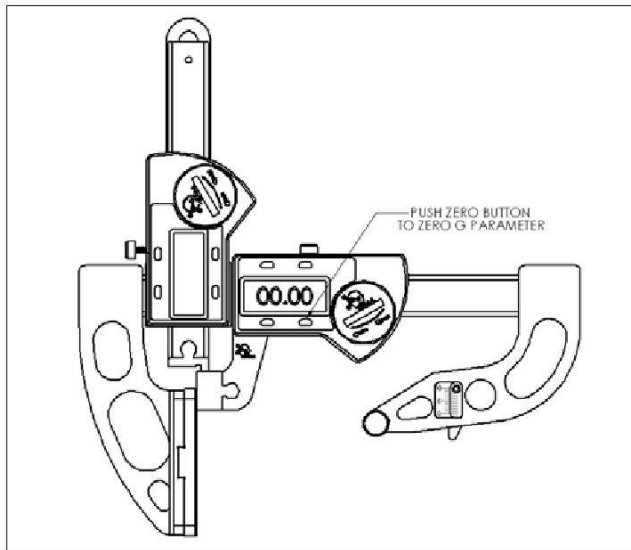
Move the vertical rule until it is located in block dents and at the same time roller bracket touches block side face and doing zero on the vertical reader see figure



VFigure

Zero set G scale

Move the horizontal slider until jaw touches the surface where the caliper magnets attached and .then doing zero on the horizontal reader. See figure



AFigure

Rail Way Wheel Parameters Caliper

Maintenance

- Adherence: Magnetic force of adherence can be modified tightening or loosening the nuts.
- Note: magnets attract iron filing therefore clean the magnets before use. -Dry carefully metallic parts if the caliper is moist.
- Do not use aggressive product (alcohol isopropyl, trichloroethylene etc.)
- Do not use clean products that contain chlorine because stainless steel corroded by chloride compounds.
- Do not store the instrument in the sun, heat or humidity.
- After use check there is not dirt in the guides or sliders, clean carefully the caliper and keep it in the case.
- Certificate the caliper periodically.