

**SINGLE POINT
GAGE UNIT**

**ZHS
USER MANUAL**

ZhongYuan JingMi CO.,LTD

Preface

This instrument has developed by our experienced engineers with their every possible effort and technical cream in ceaseless pursuit of accuracy, and carefully manufactured by our skilled technicians with the most recent production equipment. It has passed very strict tests and verified excellent performance, ensuring its reliable operation at your site,

However, this kind of instrument of high accuracy demands correct handling and maintenance for continuing utilization of its entire functions under the best condition.

This document describes the points on correct and safety handling that the persons daily using this instrument must well know. We hope that this document can help you for the good use of this instrument.

Precautions

- 1) The gaging units under this Guide can form various gaging systems with our control units depending on applications.
For detail of a specific system configuration, see the separate Operation Manual of the system. (For a rather simple system configuration, its system Operation Manual may not be provided.)
- 2) Greatest care must be taken that an excessive shock or falling-down by mistake may result in malfunction of gage heads.
- 3) Gage head cables must be run without any possibility of compression or damage due to metal chips or moving items.
Fix the cable end of gage head side to protect it from friction and extension by the gage head movement.
- 4) Run each gage head cable apart from power cables of the other equipment more than 200mm, and use a separate duct.
- 5) Do not open covers of gage heads.
Do not turn or loosen clamp screws, adjusting screws or other screws without purposes.

CONTENTS

Preface.....	1
Precautions	1
CONTENTS	2
1. Introduction	3
1.1 General.....	3
1.2 Features.....	3
1.3 models and specifications.....	4
2. Components of gage heads.....	5
2.1 Type ZHS-173F and ZHS-173F-D	5
2.2 type ZHS-173H and ZHS-173H-D.....	6
3. Preparation for Operation.....	7
3.1checking clearance of contact with work.....	7
3.2 Arrangement for the retract mechanism.....	7
4. Adjustment for Zero Point.....	8
5. Precautions.....	8
6. Warranty description.....	8

1. Introduction

1.1 General

The ZYJM Machine Control Gaging Systems measure workpieces in the machining process (in-process) or after the machining process (post-process) and generate signals to control machining equipment. The Gaging Systems can afford various advantages such as improvement of dimensional and profile accuracy, prevention of defective machining, reduction of skill-dependent works, automation and laborsaving, and enhancement of productivity.

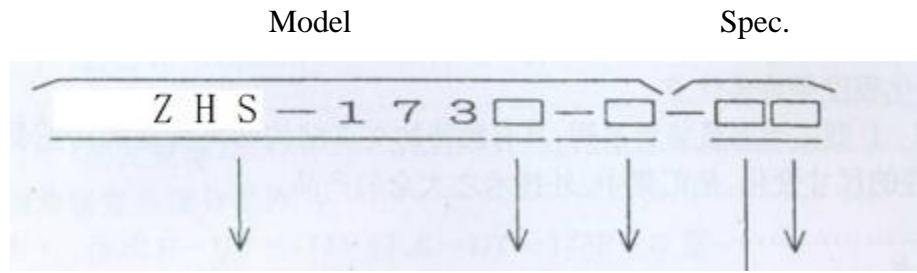
ZHS is the gage head of the Machine Control Gaging Systems, which ensures accurate dimension measurement with its unique combination of specially designed fulcrum and LVDT.

This is a condensation of Zhong Yuan Jing Mi and foreign technologies and experiences, realizing the wide applicability and tomorrow's design of machining control gages.

1.2 Features

- (1) Applicable to high-precision workpieces:
Having no slides and friction parts. ZHS can work excellently as a gage for high-precision workpieces.
- (2) High durability and rigidity:
The unique L-shaped spring fulcrum ensures ZHS for high-precision measuring instruments and also provides high durability and rigidity as the basis of on-line gage.
- (3) Reliable performance:
The enhanced fulcrum stiffness and lighter movable parts have improved the dynamic characteristics ever-lasting reliability.
- (4) Wide variety of applications:
With the specific designs such as:
 - small and compact
 - a series of functional variations like retract and damper is available
 - ample options of fingers, contacts and fine adjustment mechanisms can be used ZHS to wide variety of applications.
- (5) Easy maintenance:
The modular construction of precision components makes the maintenance very easy.

1.3 models and specifications



ZHS Gage head

Type

D for

cable length
damper

↓
Polarity

Pushing in the finger from free condition

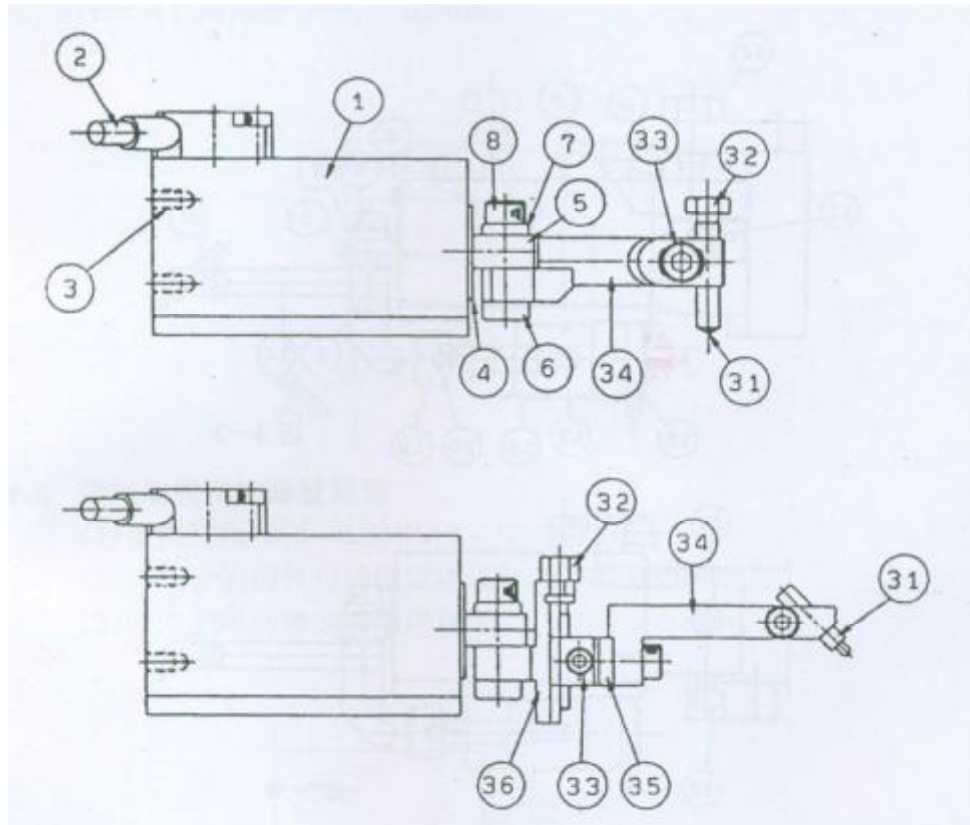
“P”-Display minus to plus

“n”-Display plus to minus

Function Type	Ari retract		Damper	
	Not using	Using (Gaging at air on)	Not using	Using
ZHS-173F	✓		✓	
ZHS-173F-D	✓			✓
ZHS-173H		✓	✓	
ZHS-173H-D		✓		✓

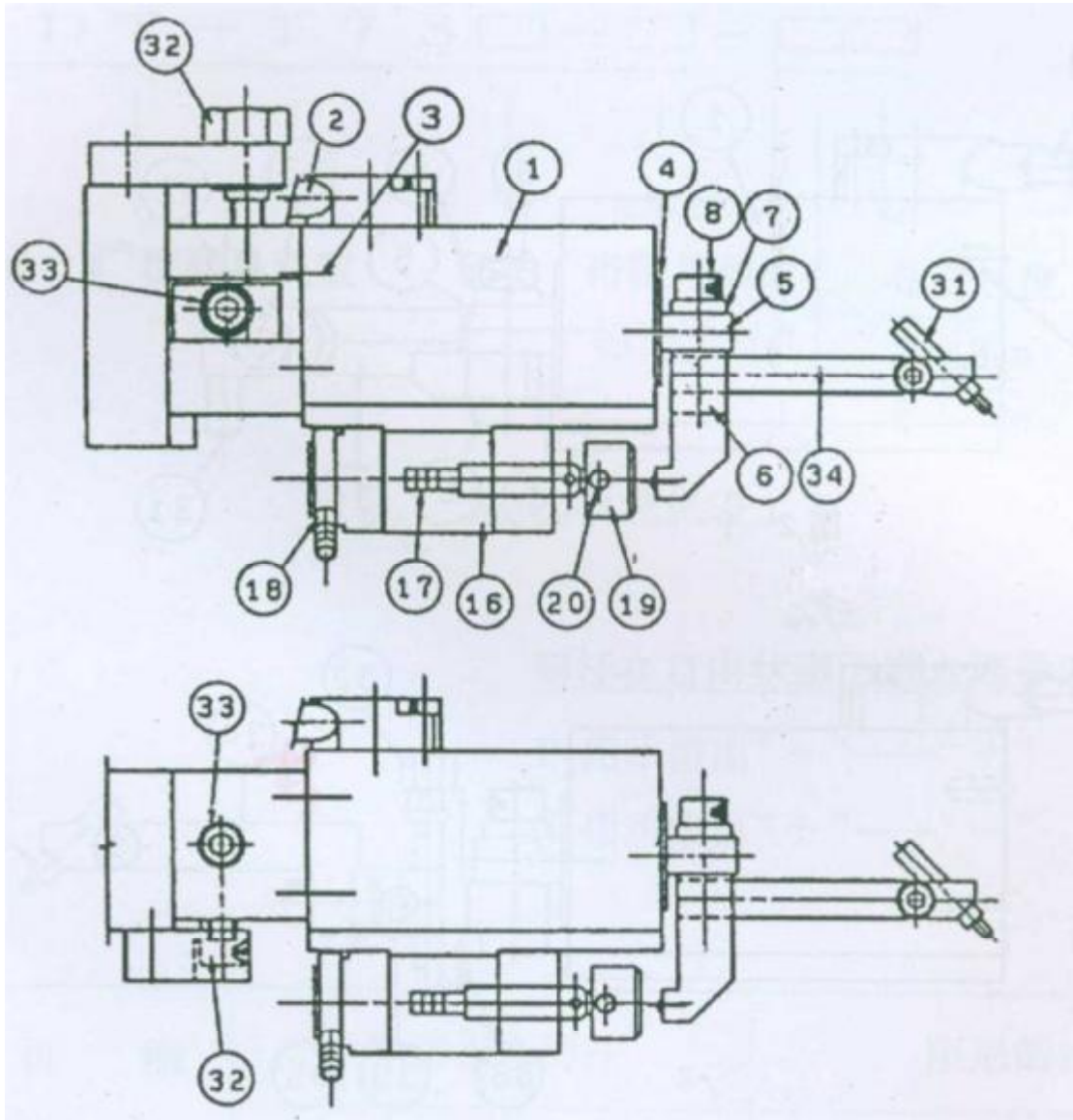
2. Components of gage heads

2.1 Type ZHS-173F and ZHS-173F-D



- | | |
|-------------------------|----------------------------|
| 1. Gage head body | 31. Contact |
| 2. Cable | 32. Height adjusting screw |
| 3. Mounting screw | 33. Clamp screw |
| 4. Boot | 34. Finger |
| 5. Lever | 35. Finger holder |
| 6. Stud | 36. Dovetail block |
| 7. Washer | |
| 8. Finger mounting bolt | |

2.2 type ZHS-173H and ZHS-173H-D



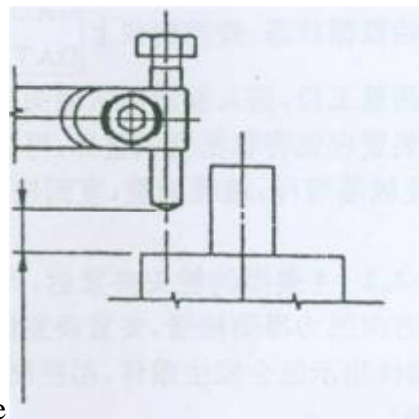
- | | | |
|-------------------------|------------------------|----------------------------|
| 1. Gage head body | 16. Air retract unit | 31. Contact |
| 2. Cable | 17. Air intake nipple | 32. Height adjusting screw |
| 3. Mounting screw | 18. Air exhaust nipple | 33. Clamp screw |
| 4. Boot | 19. Plunger head | 34. Finger |
| 5. Lever | 20. Lock screw | |
| 6. Stud | | |
| 7. Washer | | |
| 8. Finger mounting bolt | | |

3. Preparation for Operation

Check the following points just after setup of a gage head to a machine or replacement of a finger or contact. Ignorance of the points may result in the damage to the gage head or incorrect measurement.

3.1 checking clearance of contact with work

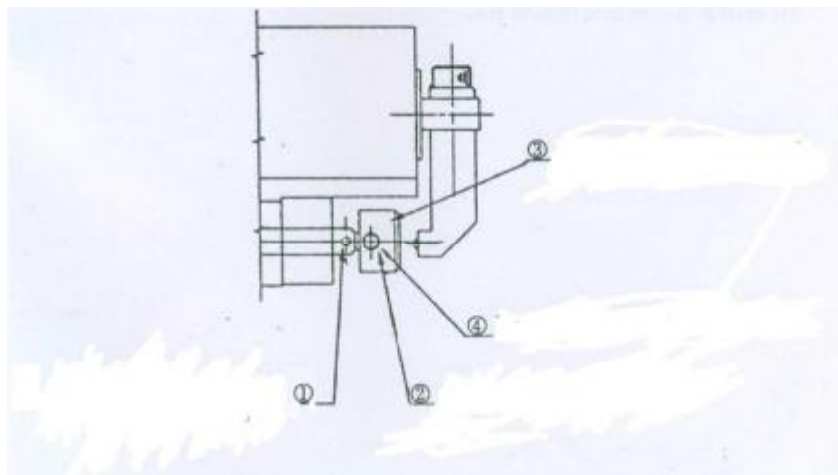
Make sure that the contact will not hit the work (or master) or other possible obstacles when the gage head is moved forward to the gaging position or the work (or master) is inserted in between contacts.



Clearance

3.2 Arrangement for the retract mechanism

- (1) Operating air pressure: 0.3~0.5 MPA
- (2) Fix the end of the exhaust tube to a place free from the coolant.
- (3) Adjust the amount of retract as shown below:



- ① fix with a hex-wrench (1.5mm)
- ② loosen with a hex-wrench (2mm)
- ③ rotate this head :CW rotation smaller retract
- ④ Lock at the end

4. Adjustment for Zero Point

In the zero-point setting, if the measured value of the zero master has exceeded the Auto-zero limit or Auto-master limit value or the measured value cannot be adjusted to zero with turning of the Zero adjuster, take the following steps.

However, the error may occur due to dust or cut chips adhering to the contact or master or for the reason of wear of the contact or master. Only after confirming the cause again, take the steps.

If the cause is the wear of the master, replace it with a new master.

Procedure:

- (1) Prepare the zero master and mount it to the gaging position.
- (2) Set Control Unit to indicate the gage data of the adjusting gage head.
For Control Unit allowing the selection of indicating data type, choose the no-corrected data
- (3) Advance the gage head and set it to the gaging position.
(adjust the finger retract for a gage head having the retract mechanism).
- (4) Rotate the height adjusting screw until the Control Unit reads zero. Then clamp the screw.
NOTE: For the fingers shown in *** turn the adjusting screw a little reversely after clamping in order to relieve it from the clamping stress.
- (5) Make sure that the deviation after clamping is nearly zero (within $\pm 10 \mu\text{m}$). If the deviation is rather large, half-clamp the adjusting screw before adjustment.
- (6) For a slight deviation after clamping, adjust with the Control Unit operation.

5. Precautions

- (1) Except for maintenance and inspection personnel, please do not disassemble the measuring device at will.
- (2) When repairing or replacing fuses, please disconnect the power supply first.
- (3) During installation or operation, please confirm whether the machine tool has any abnormal movements before proceeding with the operation, otherwise there is a possibility of injury to personnel
- (4) The controller must not load heavy objects, and the ground wire of the power supply must be grounded, otherwise it may cause machine tool misoperation and cause personal injury. Injury to personnel.

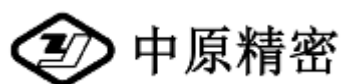
6. Warranty Description

- 6.1. This product warranty service is only valid for normal use:

6.2. Non product quality issues and malfunctions caused by abnormal use are not covered by warranty. For example: including However, malfunctions caused by the following circumstances are not covered by warranty:

- (1) The device is unable to measure deformation, bending, etc. due to external impact;
- (2) Unauthorized disassembly of the device by the user may result in loose components, oil leakage, or liquid ingress;
- (3) Malfunctions caused by failure to use as required and the device operating beyond its normal range of application.

V1.1 202406



Sanmenxia ZhongyuanJingmi Co.,Ltd

Address: east ection of weiliu road, sanmenxia industrial park,

henan, China

Tel: 0398-2751818 Fax: 0398-2751819

Postcode: 472000

<http://www.zyjm.com>



Scan QR code→Support Service
→Download Center→ Manual