

INSTRUCTION MANUAL

* TENSION PICKUP *

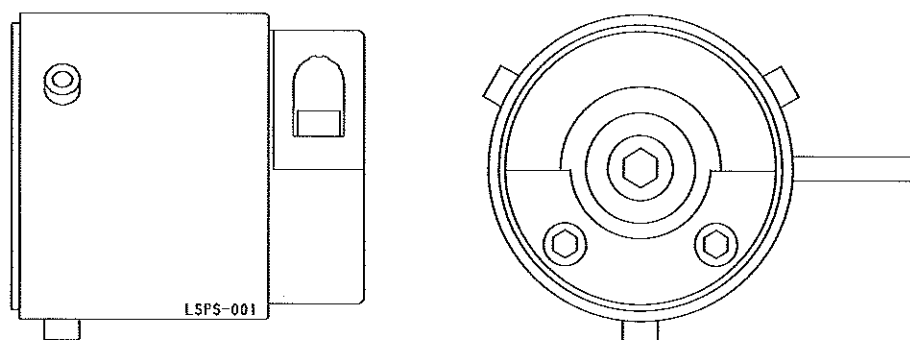
(STRAIN GAUGE TYPE)

Model :LSP00

LSP01

LSP05

LSP10



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***** INSTRUCTION MANUAL *****

TENSION PICKUP

Model : LSP00,LSP01,LSP05,LSP10

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The LSP type tension detector is the tension pickup that makes use of the strain gauge. Before operating this product, read this manual and keep instructions as follows. Use it properly or not only display the performance but it cause to troubles.

- (1) No adjustment part in this pickup, and not takes to pieces. The coating treats on the gauge part and the circuit board, it is humidity proof. Never remove this coating or the performance decline and the operation come out of order. The position relations of an output cord, a Bearing house and the direction of tension detection are always fixed. Don't change a Bearing house position only. A roller install always from the opposite of the direction of tension detection. In case of the direction of tension detection is upward, a roller install from under side, but it is impossible change of this direction.
- (2) The LSP type pickup connects with the exclusive tension meter or the tension controller that combine the strain gauge only. The LA type pickup cannot connect to this circuit. Refer to 9 page about usable type of the tension detector.
- (3) The tension zero adjustor and the scale adjustor are built in the tension meter or the tension controller. Refer to the instruction manual of the use.
- (4) Be sure use this pickup below the rating weight. The maximum instantaneous over load is with in 150% of the rating weight. In case of there's a danger of heavy over load, attach the external stopper.
- (5) Be sure use the pickup roller of lightly and is adjusted the dynamic balance enough. Especially in the high-speed machine, there's a danger of rising swing or became it can't measurement. But The characteristic over allowable eccentric load is improving certainly on structure.
- (6) Not usable in the corrosive gas or under the water, and keep away from the water splashing, a high humidity (over than 80%) place.
- (7) When carry this pickup, don't lift the pickup cord, there's a possibility of cutting a cord.
- (8) In case of the pickup cord vibrate by the machine shake, and make fix a cord.
- (9) After adjustment, if happened something unusual, read this manual and check the pickup, tension meter or a tension controller with refers to the specifications.

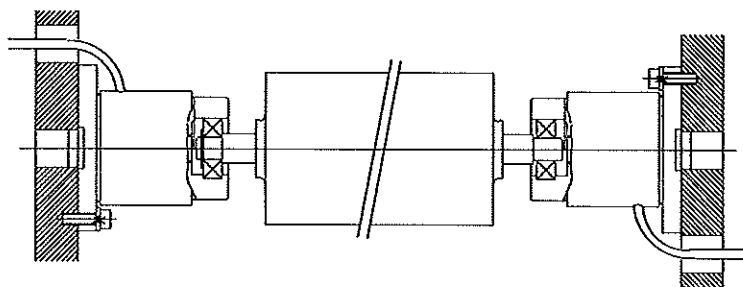
This LSP type tension pickup possess the outstanding characters, but if make incorrect installed or not only display the performance but it cause to troubles. And before installation, read this manual thoroughly to acquire sufficient knowledge of the products.

(1) Reference illustrations for installation

As follows, by use of an adapter it is possible install to the both side of a machine frame. Installation methods are decided at the planning, and check that adapter, correspond to your original order.

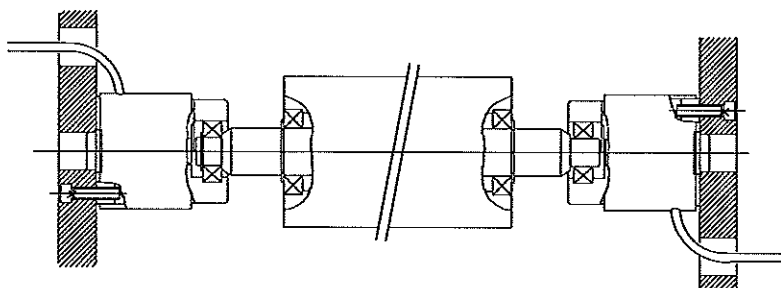
Bearing holder

Frame inside fixing
(Use, I_2 type adapter)



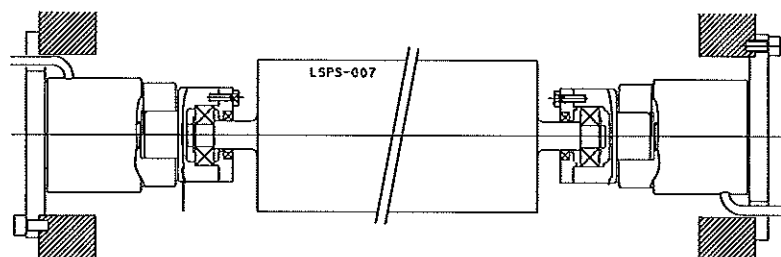
Through bearing

Frame inside fixing



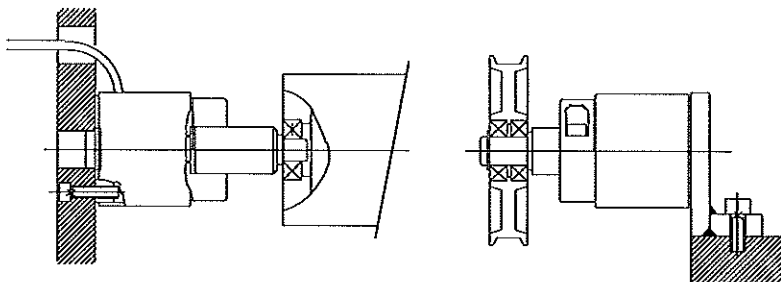
Special bearing

Frame outside fixing
(Use, O_2 type adapter)



Fixed shaft and
inner bearing

Frame inside fixing

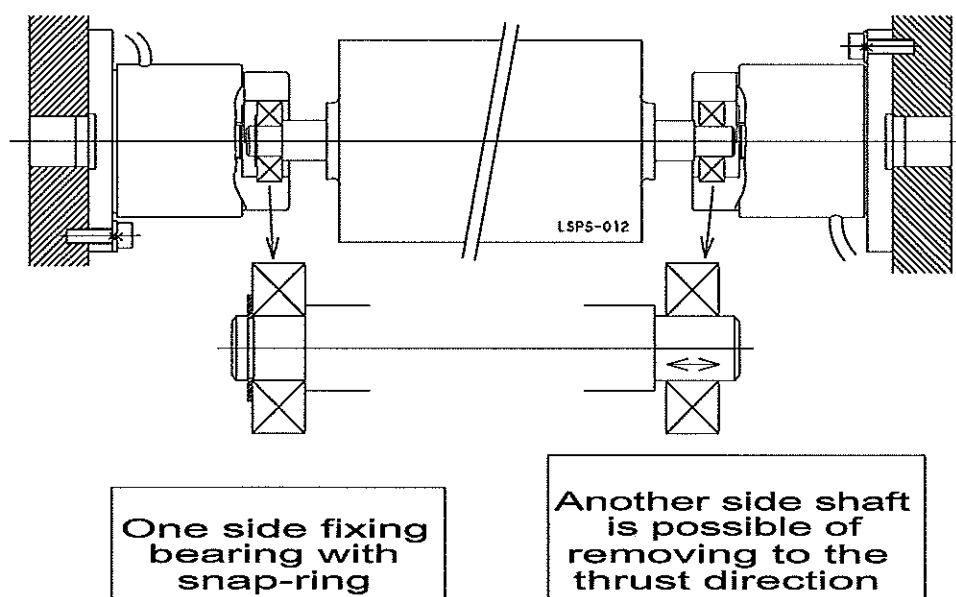


Independent
fixed bearing

(Use, L_2 type adapter)

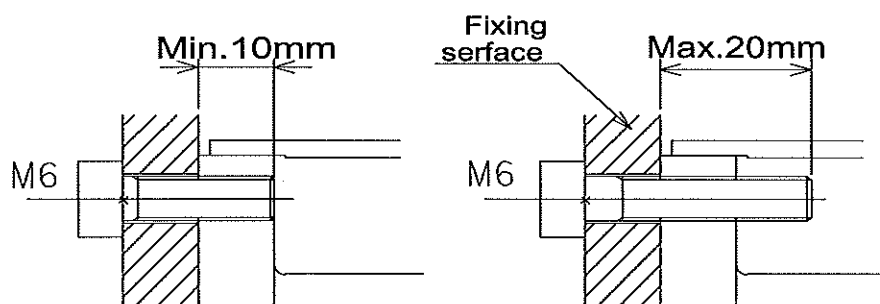
(2) How to a roller fixing

The fixing of the roller thrust direction is one side only, and another side is possible of removing to the thrust direction. As follow illustration. This is requirement thing, because it mechanism absorb error of the roller length alteration by the assembly error of frame size, the processing precision and the thermal expansion. In case of not like this, be sure deal with design modification or additional processing of the roller. And encourage the automatic self-aligning bearing.



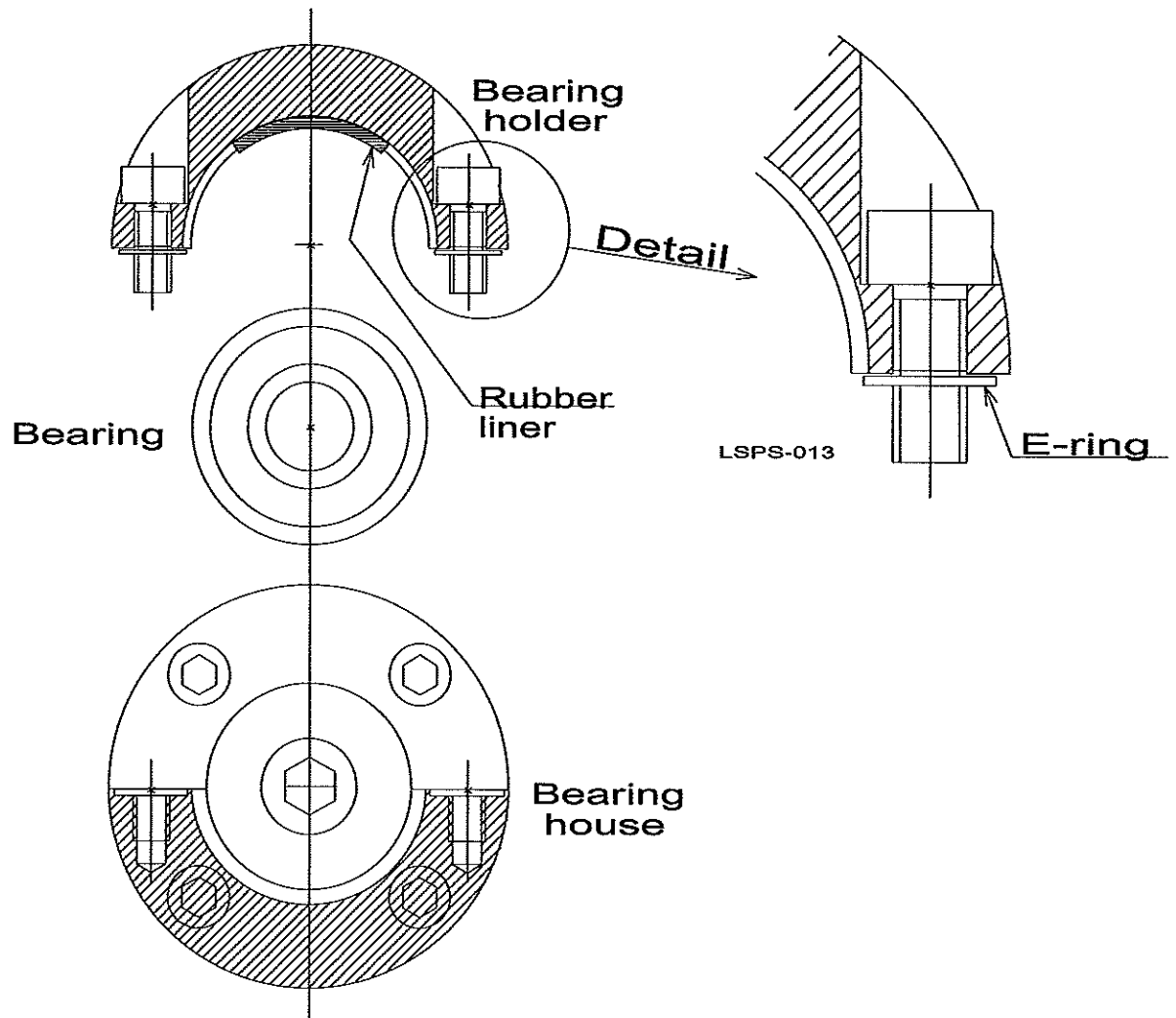
(3) About a screw depth of a fixing bolt

The length of a fixing bolt for the standard type pickup is 10~20mm long from fixing surface. In case of the length is 10mm or under, there's a possibility of break a screw, but 20mm or longer a danger of break the pickup inside.



(4) How to fixing or removing of the bearing house (holder)

【Structure of the bearing holder】



The bearing holder is formed as mentioned about, that is, it can't draw out by the E-ring for protect a fixing bolt from falling out. Therefore, when to fixing or removing of the bearing holder, turn the both side bolts alternately and bit by bit. A durable urethane rubber is pasted inside of the bearing house. It is necessarily, for absorb the processing errors and keep interchangeability of the part. Watch out for come off.

(5) About a center adjustment of the roller

- As shown illustrated on page2, it install with the faucet joint fundamentally, and a center adjustment is unnecessary. But, in case of a hole in the frame for the position setting is missing, or a flatness of fixing surface is wrong, and this adjustment is necessary. In this case, make adjust after take off the position setting boss. When use the frame fixing adapter, take an ant inflation measure that as reverse the direction of the faucet joint etc.,

【Notes】 At under a center adjust, don't strike a head of the pickup. Put a some soft plate as a plastic board, and knock a close point of the fixing surface, tack care of that the pickup don't get damage.

- In case of a flatness of fixing surface is missing, a little distortion happens and cause as the follows phenomena.
 - ① The zero point is missing largely.
 - ② And at a hard, according to circumstances the zero adjustment come to impossible.
 - ③ Not gain the output linearity.
 - ④ Can't the scale adjustment.

If happen here phenomena, take necessary such measurers as insert the spacer, and correct the fixing surface,

- Checking method about a little distortion happened or not at the pickup install.
 - ① First, install the pickup and the roller, in this time, don't tighten the bearing holder, or make provisional installation.
 - ② Make the zero adjustment on the both side L and R.
 - ③ And then tighten the bearing holder.
 - ④ Watch the alteration of zero point, if the alteration is widely and the little distortion happened.

(6) About the cover

There are possibility of the drop of water, a collision of object, and man step on, in such a case fit up the cover for overspread the whole. Also, in the crane operation area, it is possibility of a crane wire catch the pickup, and prepare a protection cover or instructions.

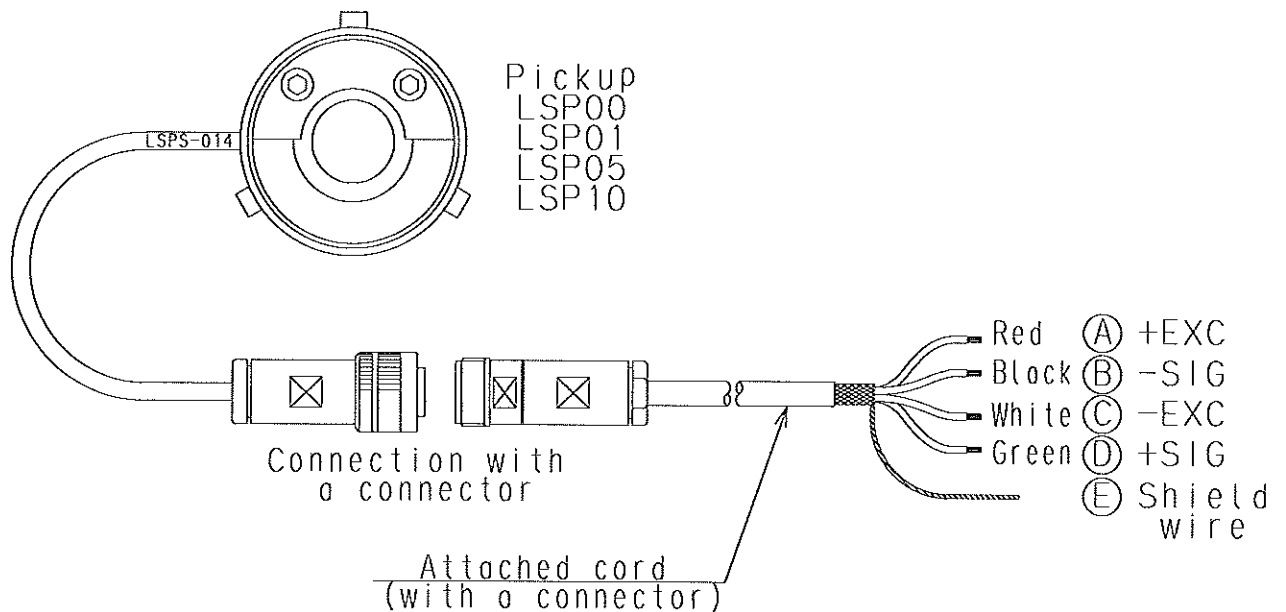
(7) About interchangeable

The same model of the pickup is made on the same specifications, not an adjustment parts this inside. Accordingly, the all-same models of the pickup are interchangeable. With the conventional LS type, there is convertibility fundamentally. The pickups of the same specifications are not choosing an installation place. But in this case recommend that make a calibration to the pickup after installed.

3

WIRING

- (1) Use the cord with a connector for wiring, and this connector is waterproof type.
- (2) When a card extend, prepare a terminal box and connect to terminals.
- (3) Use the shielded cord included 4-conductors of the 0.5mm² or more cross section area for the extended cord. And use with the metal pipe (the conduit tube) if possible.
- (4) At make connection of wire, follow the manuals or the specifications of a tension meter or controller.
- (5) In case of the output cord vibrate, be sure fix the cord.



4

ADJUSTMENT (CALIBRATION)

This pickup not an adjustment part inside.

The tension meter adjustment (calibration) carry out on the all connected devices side that is on the tension meter or controller units.

Refer to the instruction manual of the use unit.

5

EXPLANATION OF STRUCTURE

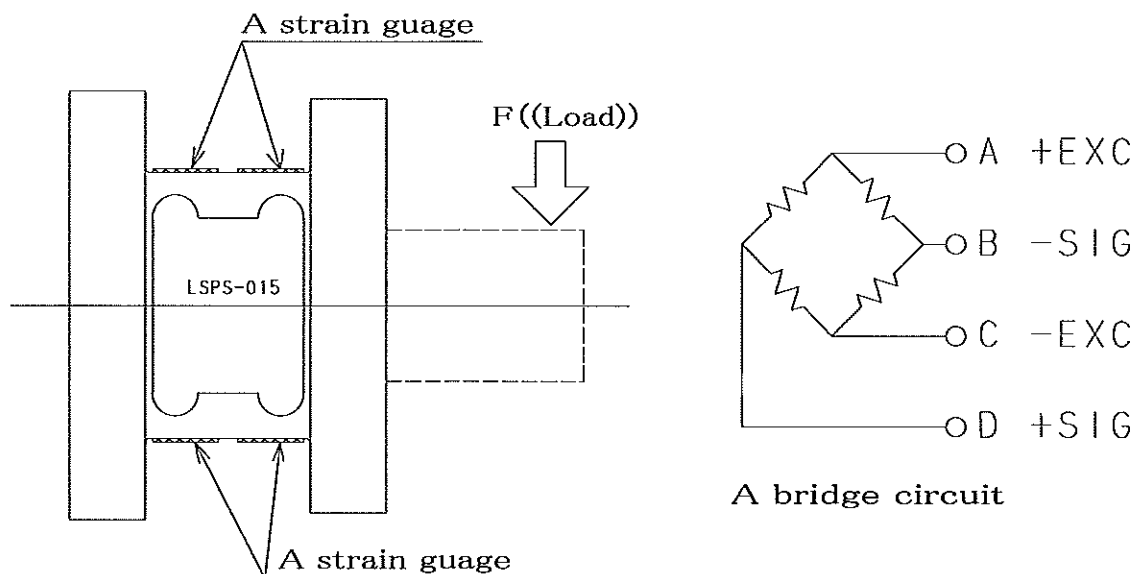
As the follows illustration, four pieces of the strain gauge are pasted on the cylindrical element.

Each gauge make the bridge circuit as showed the right.

Exert the load on the element, it is a little bend, and this strain make a variation of the resistance, this variation output the voltage signal by the bridge circuit.

A temperature compensation circuit is assembled on the circuit board. This circuit and the strain gauge are coated with silicone.

Don't remove this coating.



6

SPECIFICATIONS · CHARACTERS

[Show the individual value of the pickup]

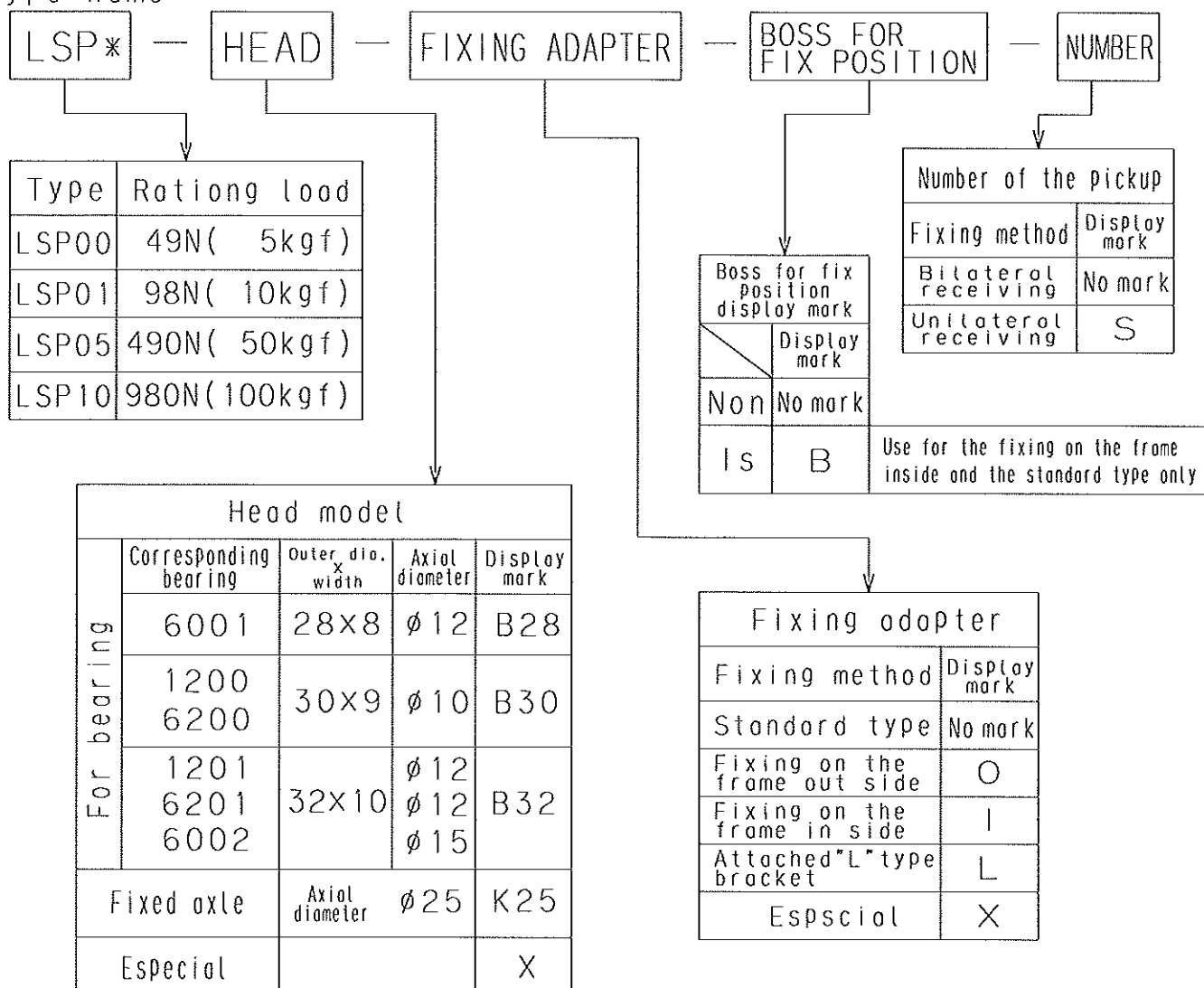
Model	LSP00	LSP01	LSP05	LSP10
RATING LOAD (R.C) (Par 1 pickup)	50N	100N	500N	1000N
RATING OUTPUT (R.O)	Approx. 1.5mV / V			
UNLINEARITY	0.1% R.O			
HYSTERESIS	0.1% R.O			
REPRODUCIBILITY	0.05% R.O			
DISPLACEMENT MAGNITUDE	0.08mm R.O			
INPUT RESISTOR	750 Ω \pm 10 Ω			
OUTPUT RESISTOR	750 Ω \pm 5 Ω			
IMPRESSED VOLTAGE	10V			
MAX. IMPRESSED VOLTAGE	15V			
RANGE OF THE USING TEMPRERATURE	0~40°C			
RANGE OF THE USING HUMIDITY	80% less than (Not a dewing)			
TEMPERATURE DRIFT AT THE ZERO POINT	\pm 0.06% R.O / 0~10°C			
TEMPERATURE DRIFT OF THE OUTPUT	\pm 0.06% LORD / 0~10°C			
ALLOWABLE OVER LOAD	200% R.C			
CONNECTABLE (USABLE) TENSION METER	• TCS-550 HG(Multi channel tension meter Model: MSM) • ST20 • T300			
CONNECTABLE (USABLE) TENSION CONTROLLER	• SC20 • C500			

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INDICATION OF NAMING · APPEARANCE SIZE

(1) Model name indication method of the LS type tension pickup.

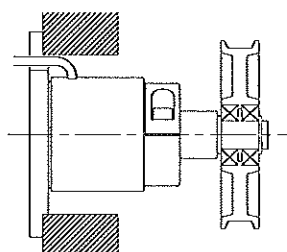
Type name



Exemple of the display

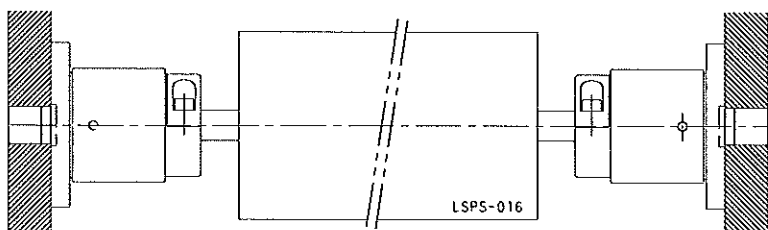
LSP0-K25-O-S

For fixed axle
For frame outside
Unilateral receiving



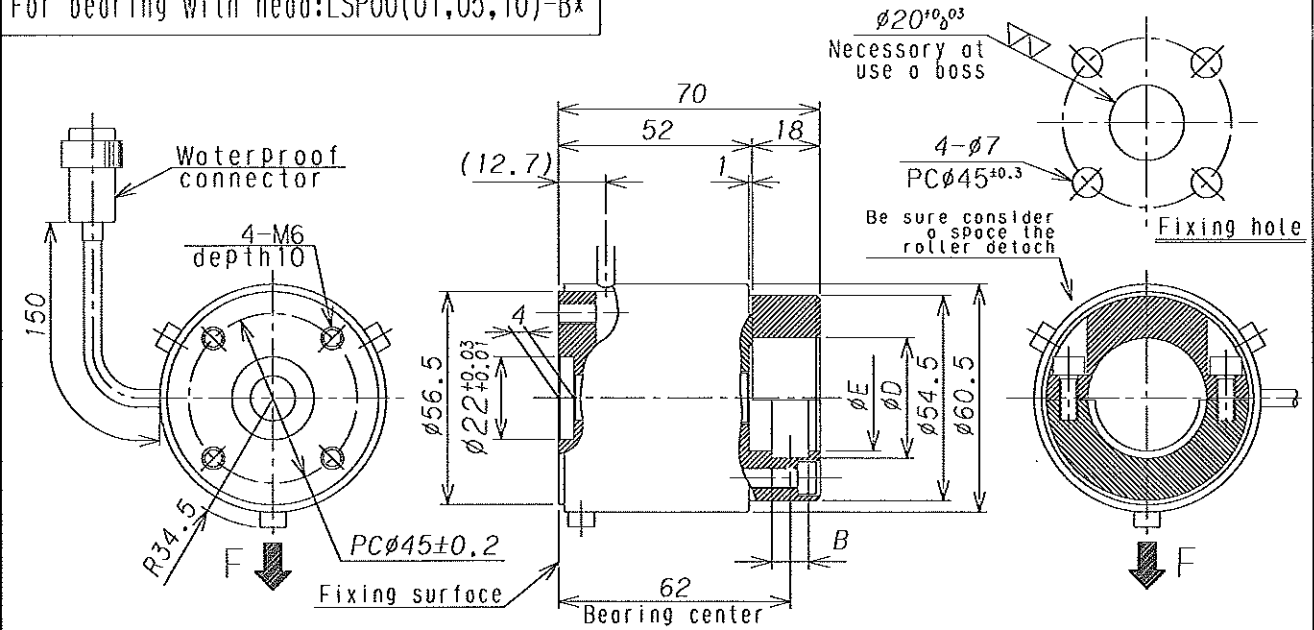
LSP1-B32-I-B

For bearing
For frame inside
Boss is
Bilateral receiving



(2) Appearance size of the standard type pickup.

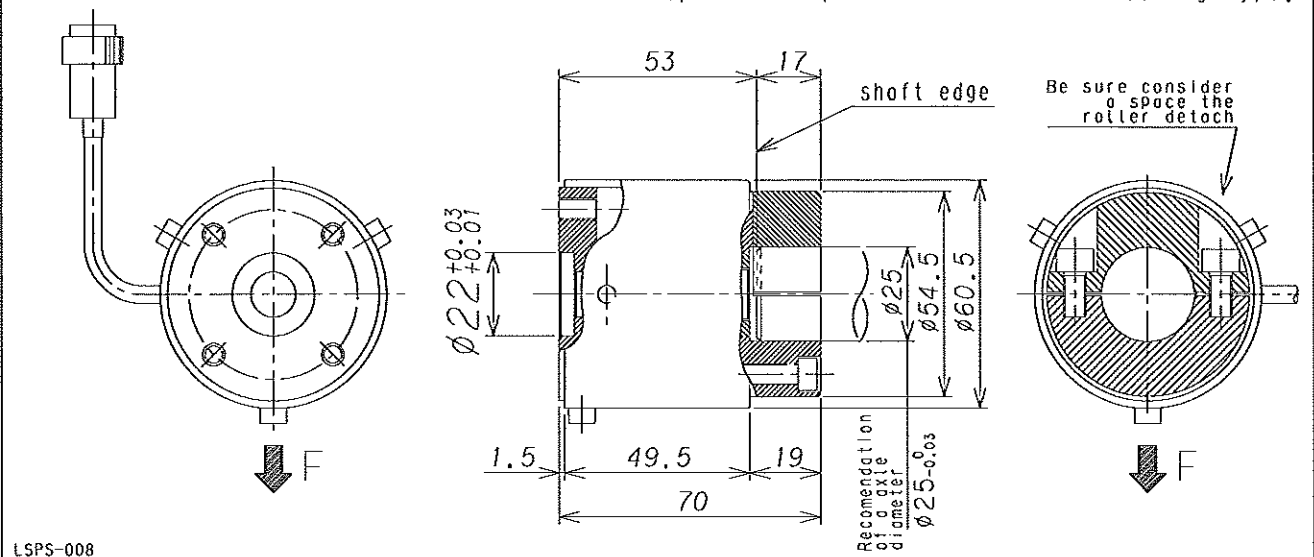
For bearing with head:LSP00(01,05,10)-B*



For fixed axle with head:LSP00(01,05,10)-K25

This type is only one kind.

Except a head part is some as for bearing type.



LSPS-008

Head size for bearing

Head mark	øD	øE	B	Corresponding
B28	28	25	8	6001
B30	30	27	9	1200, 6200
B32	32	28	10	1201 6201, 6002

LSP00,01,05,10 Appearance size is the same.

Be core of the F direction and the pulling out direction of a cord.

Non L & R type, only one type.

For fixed axle is ø25 type only.

Keep a screw depth is 12~20mm from fixing plate surface.

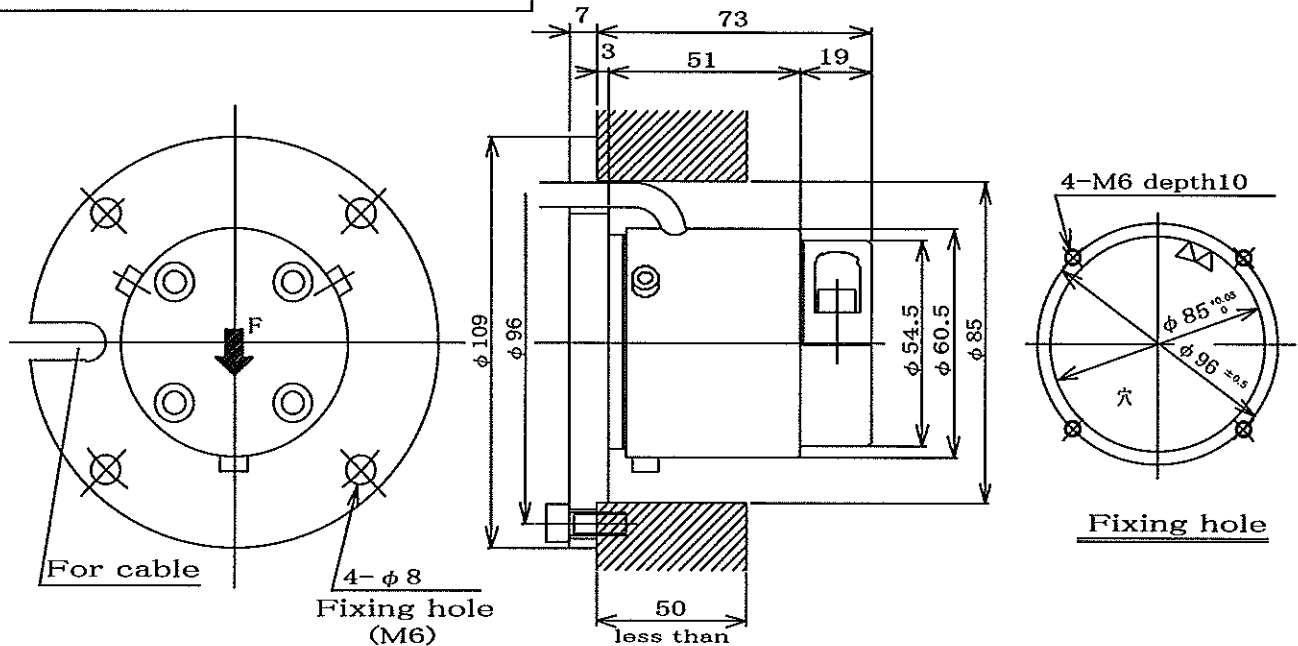
The all type there are possible for detach of a bearing and a shaft after installed.

(3) A size for the adapter fixing

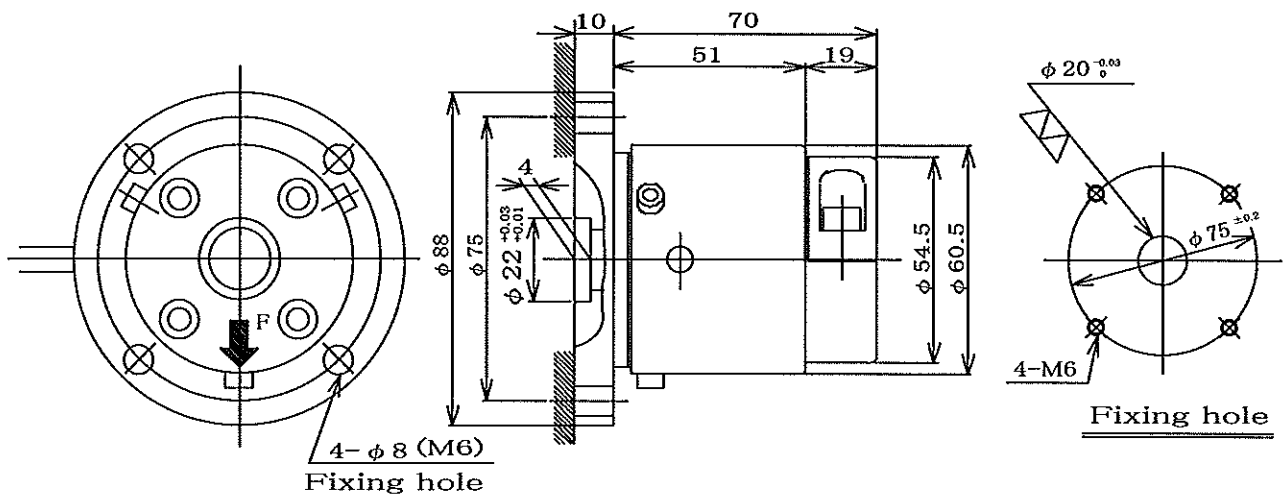
A standard type attachable the adapter as follows figure

Fixing on the frame outside LSP*-*-O

LSPS-009



Fixing on the frame inside LSP*-*-I



L type with a bracket LSP*-*-L

The detecting direction is possible to change for the four directions.

Boss for fix position *-B

