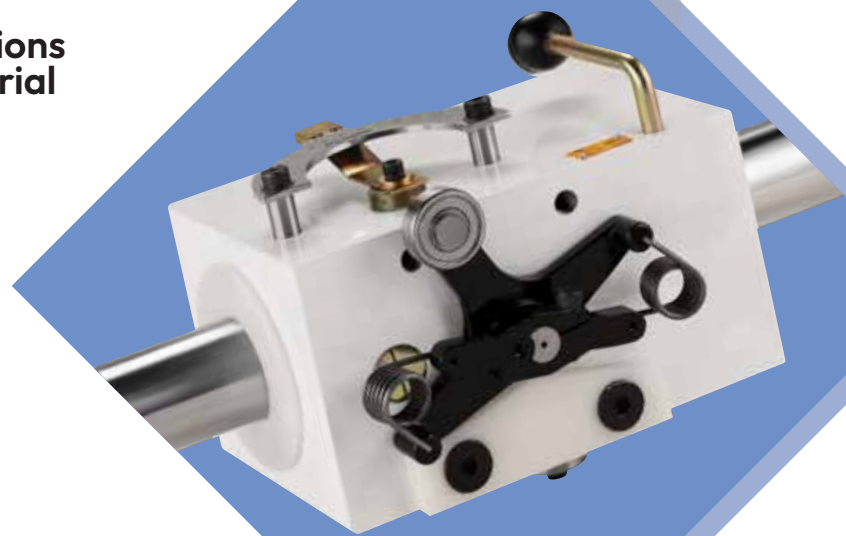




Product catalogue

Explore our new innovations and enhance your industrial operations.



Traverse units | Traverse assemblies



**Acurate
Flexible &
Reliable**

**Traverse units
Traverse assemblies
Linear drives**

Precision engineering. Redefined

Rollring Traverse Units - Versatile Linear Motion Solutions

Rollring Traverse units find versatile applications wherever linear reciprocating motion is required. They offer automatic and instantaneous reversal for unidirectional rotation and constant-speed rotation of a shaft. An added advantage lies in the finely adjustable linear speed, attainable with a simple lever adjustment on the unit, accompanied by the flexibility of varying stroke lengths. The Traverse unit operates on a plain round, hardened shaft with a finely ground finish.

New and Improved Traverse Units!

We're proud to present our enhanced design and a range of new models tailored to fit shafts of various diameters, including 10mm, 15mm, 16mm, 20mm, 22mm, 25mm, 30mm, 40mm, 50mm, 60mm, and 80mm. Explore our HT1, HT2, 4RR15, HT16, 4RR16, HT3, 4RR20, HT22, 4RR22, HT25, 4RR25, HT3N, 4RR30, 3RR40, HT4, 4RR40, HT5, 4RR50, HT6, 4RR60, HT8, and 4RR80 models.

We offer two distinct types of Rollring Traverse units: the HT and 3RR series with 3 Rolling rings, and the robust Heavy-Duty 4RR series with 4 Rolling rings. The 4RR series boasts double the load-bearing capacity, enhancing its capabilities for demanding applications.

Applications:

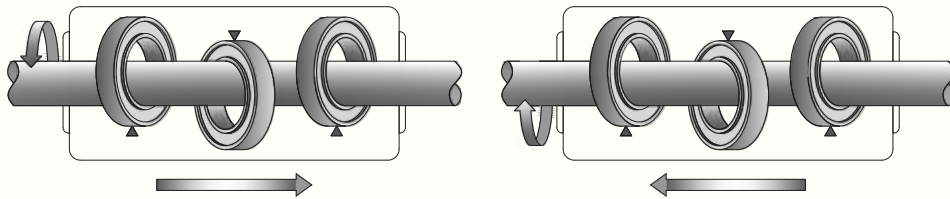
Rollring Traverse units are ideal for any application requiring linear reciprocating motion, constant-speed unidirectional rotation of a plain shaft with variable linear speed, stroke length, and automatic instantaneous reversal.

Traverse units are used across various industries to fulfil a wide spectrum of linear motion requirements. They serve as indispensable tools for efficiently winding materials of diverse shapes and dimensions. They cater to a broad range of applications, from delicate fibre optic wires to robust heavy-gauge cables. Whether it's wires, ropes, flat materials, strips, straps, hoses, filaments, tapes, foils, or even solid materials such as steel, aluminium, copper, rubber, plastic, and fibre, Traverse units ensure precise and effective winding.

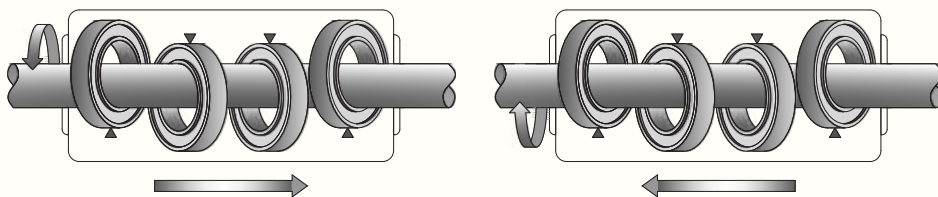
Salient Features:

- Proven system with virtually zero maintenance requirements.
- Automated and instantaneous reversal of motion.
- Precisely adjustable linear speed.
- Flexibility to fine-tune stroke lengths.
- Minimal torque requirement.
- Consistent, constant-speed rotation of the shaft in a single direction.
- Automatic speed synchronization in winding applications.
- Eliminates the need for a separate motor and control mechanism.
- Virtually no backlash in motion.
- Accommodates heavy loads with the use of a load carrier.
- Suitable for both horizontal and vertical applications.
- Traverse assembly available with shaft lengths of up to four meters.
- Availability of hardened and hard chrome plated ground shafts (60 Hrc) in stock.
- Comprehensive variety of models (22 in total) available in three and four Rolling Ring configurations, catering to shaft diameters ranging from 10 to 80 mm.
- Side Thrust: Can handle loads ranging from 5 kg to 300 kg.
- For loads surpassing the traverse unit's capacity, the option of utilizing a load carrier with linear bearings and a guide shaft/rail is available.
- Spare parts readily available in stock.
- Backed by a two-year guarantee

Rolling Traverse Mechanism (Three Rolling Ring)



Rolling Traverse Mechanism (Four Rolling Ring)



Specifications

This table summarizes the specifications for each Traverse unit model based on shaft diameter.

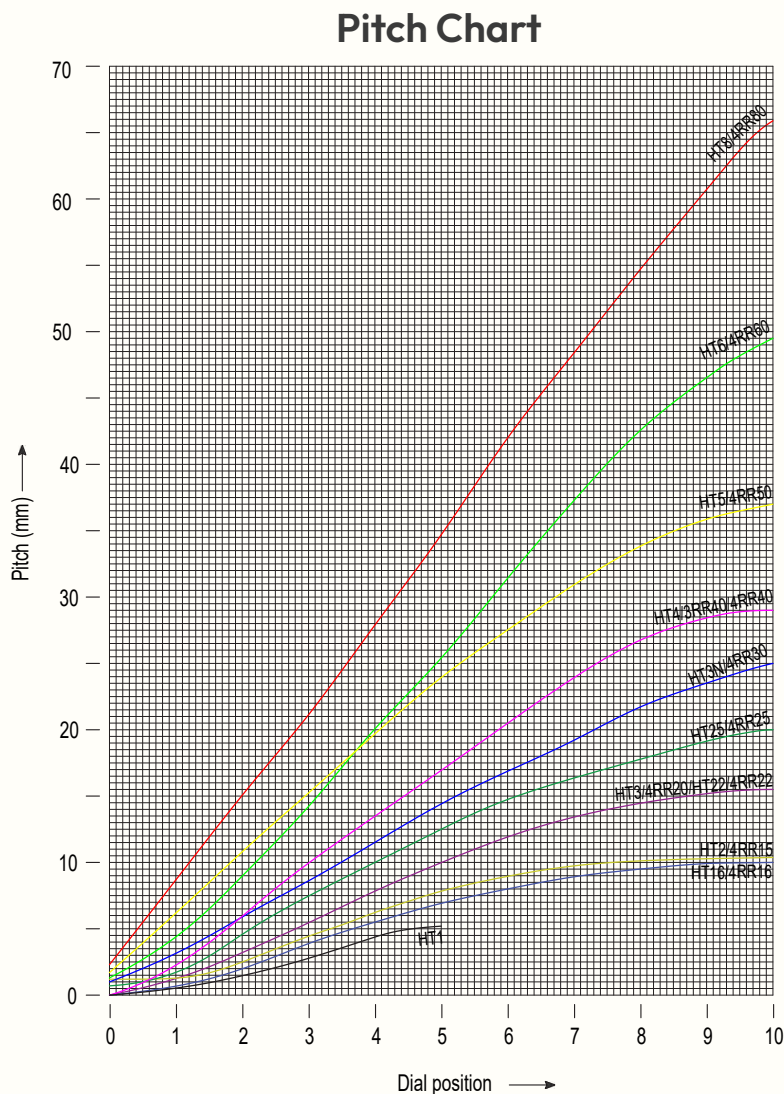
SL. NO	Traverse Unit Model	Shaft Diameter (mm)	Number of Rolling Ring	Side Thrust (Kg)	Maximum Pitch	Maximum Shaft Speed (RPM)	Maximum Linear Speed (Mtrs/minute)	Drive Torque (Kg Cm)	Weight (Kg)
1.	HT1	10	3	5	5.6	2000	11.2	0.25	0.5
2.	HT2	15	3	9	9.5	2000	19	0.3	1.1
3.	4RR15	15	4	18	9.5	2000	19	0.5	1.31
4.	HT16	16	3	9	9.9	2000	19.8	0.3	1.08
5.	4RR16	16	4	18	9.9	2000	19.8	0.5	1.28
6.	HT3	20	3	14	16	1500	27	0.3	2
7.	4RR20	20	4	28	16	1500	27	0.6	2.5
8.	HT22	22	3	14	16	1500	27	0.3	2
9.	4RR22	22	4	28	16	1500	27	0.6	2.5
10.	HT25	25	3	20	19	1500	28.5	0.3	2.65
11.	4RR25	25	4	40	19	1500	28.5	0.6	3.18
12.	HT3N	30	3	21	24	1000	24	1.2	3.2
13.	4RR30	30	4	42	24	1000	24	2.5	4
14.	3RR40	40	3	38	29	750	22.5	3.5	6.6
15.	HT4	40	3	38	29	750	22.5	3.5	5.6
16.	4RR40	40	4	76	29	750	22.5	4.5	7.5
17.	HT5	50	3	58	36	500	18	7.5	9.9
18.	4RR50	50	4	116	36	500	18	13	11.3
19.	HT6	60	3	100	48	350	16.8	10	15.7
20.	4RR60	60	4	200	48	350	16.8	16	18.5
21.	HT8	80	3	150	64	300	19.8	32	32
22.	4RR80	80	4	300	64	250	16.5	37	38.7

Side Thrust

The side thrust refers to the force that can be safely applied. If this force surpasses the specified maximum value, the traverse unit will slip on the shaft.

Pitch

The pitch signifies the linear displacement of the traverse unit for a single revolution of the shaft. The pitch reaches its maximum value when the dial is set to 10. To adjust the pitch with precision, the pointer lever is shifted along the dial. For optimal accuracy and performance, it's recommended to operate the traverse unit above setting 1 on the dial.



Maximum Pitch: The maximum pitch represents the linear movement achieved for one rotation of the shaft, typically set at dial setting 10.

10 mm

Traverse unit for 10 mm diameter shaft (Model HT1)

Description	HT1
Number of Rolling Rings	3
Max Side Thrust	5 KG
Max Pitch	5.6 mm
Max Shaft Speed	2000 RPM
Max Linear Speed	11.2 m/min
Weight	0.5 Kg
Drive Torque	0.25 Kg cm
Free Movement lever (FM)	NOT AVAILABLE

HT1

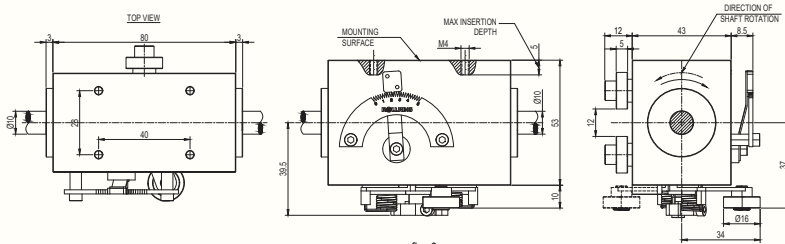
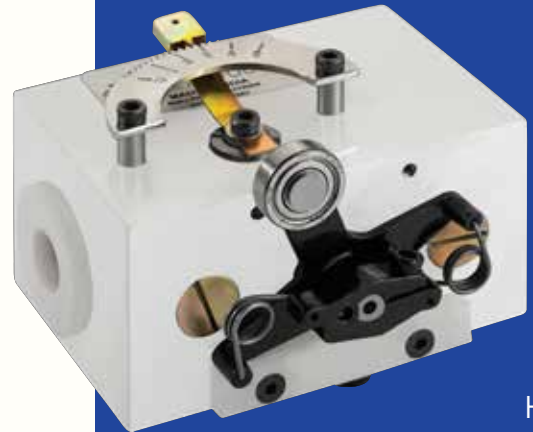


fig. 3



HT1

15 mm

Traverse unit for 15 mm diameter shaft (Models HT2 and 4RR15)

Description	HT2	4RR15
Number of Rolling Rings	3	4
Max Side Thrust	9 Kg	18 Kg
Max Pitch	9.5 mm	9.5 mm
Max Shaft Speed	2000 RPM	2000 RPM
Max Linear Speed	19 m/min	19 m/min
Weight	1.1 Kg	1.31 Kg
Drive Torque	0.3 Kg Cm	0.5 Kg Cm
Free Movement lever (FM)	FM1 & FM2	FM1

HT2/4RR15

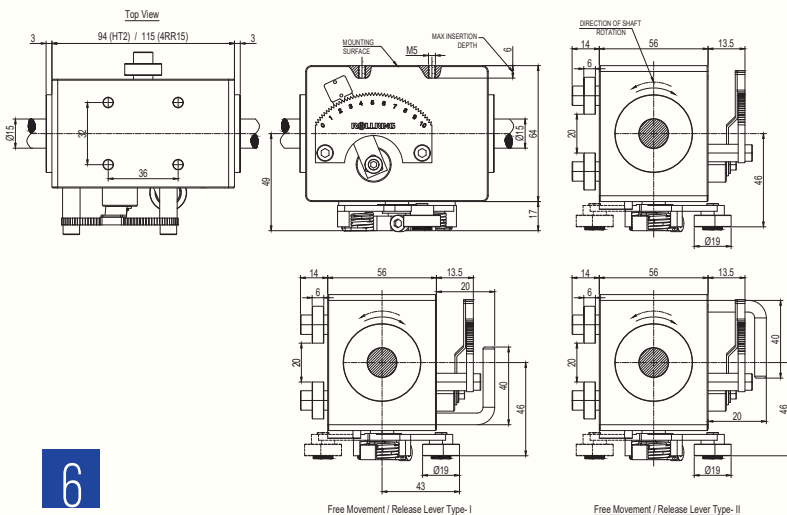


fig. 4



HT2



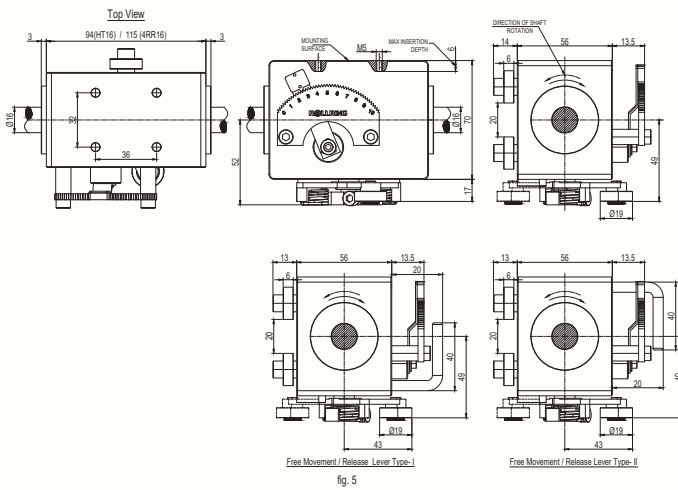
4RR15

**16
mm**

**Traverse unit for 16 mm diameter shaft
(Models HT16 and 4RR16):**

Description	HT16	4RR16
Number of Rolling Rings	3	4
Max Side Thrust	9 Kg	16 Kg
Max Pitch	9.9 mm	9.9 mm
Max Shaft Speed	2000 RPM	2000 RPM
Max Linear Speed	19.8 m/min	19.8 m/min
Weight	1.08 Kg	1.28 Kg
Drive Torque	0.3 Kg Cm	0.6 Kg Cm
Free Movement lever (FM)	FM1 & FM2	FM1

Model HT16/4RR16



HT16



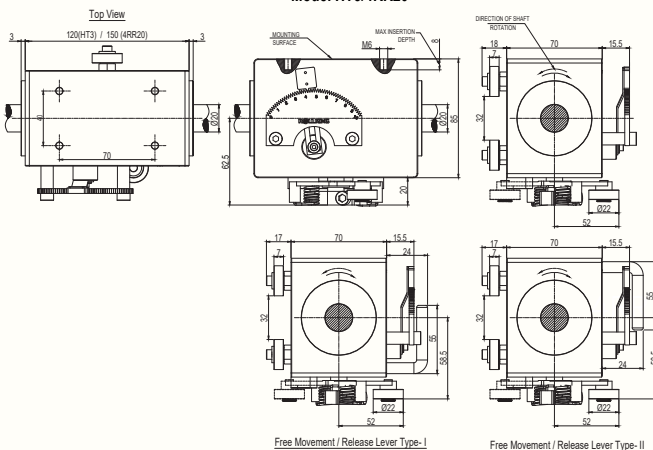
4RR16

**20
mm**

**Traverse unit for 20 mm diameter shaft
(Models HT3 and 4RR20)**

Description	HT3	4RR20
Number of Rolling Rings	3	4
Max Side Thrust	14 Kg	28 Kg
Max Pitch	16 mm	16 mm
Max Shaft Speed	1500 RPM	1500 RPM
Max Linear Speed	27 m/min	27 m/min
Weight	2 Kg	2.5 Kg
Drive Torque	0.3 Kg Cm	0.6 Kg Cm
Free Movement lever (FM)	FM1 & FM2	FM1

Model HT3/4RR20



HT3



4RR20

**22
mm****Traverse unit for 22 mm diameter shaft
(Models HT22 and 4RR22):**

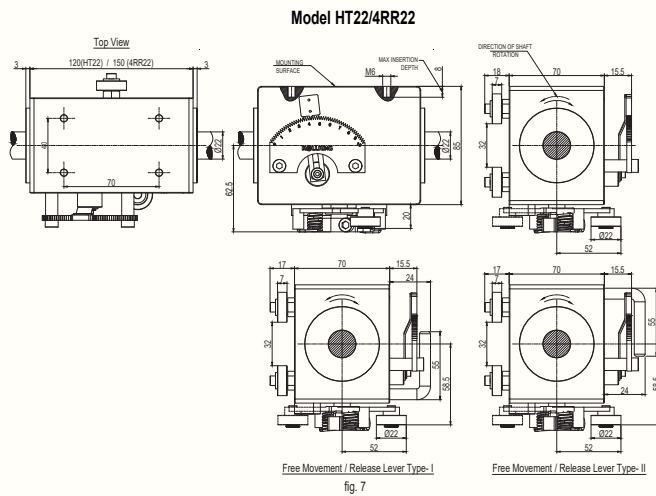
Description	HT22	4RR22
Number of Rolling Rings	3	4
Max Side Thrust	14 Kg	28 Kg
Max Pitch	16 mm	16 mm
Max Shaft Speed	1500 RPM	1500 RPM
Max Linear Speed	27 m/min	27 m/min
Weight	2 Kg	2.5 Kg
Drive Torque	0.3 Kg Cm	0.6 Kg Cm
Free Movement lever (FM)	FM1 & FM2	FM1



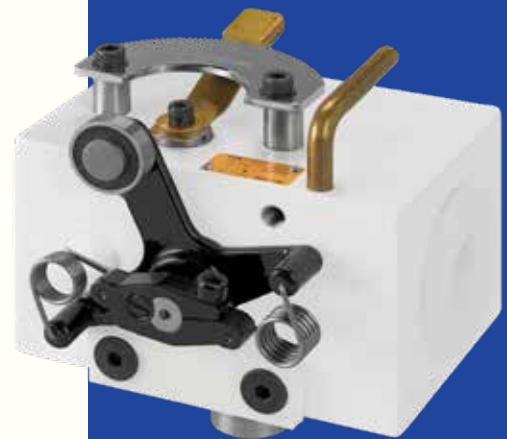
HT22



4RR22

**25
mm****Traverse unit for 25 mm diameter shaft
(Models HT25 and 4RR25):**

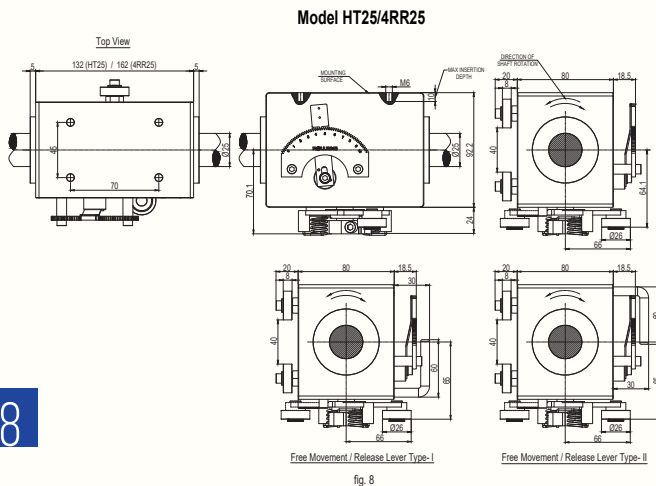
Description	HT25	4RR25
Number of Rolling Rings	3	4
Max Side Thrust	20 Kg	40 Kg
Max Pitch	19 mm	19 mm
Max Shaft Speed	1500 RPM	1500 RPM
Max Linear Speed	28.5 m/min	28.5 m/min
Weight	2.65 Kg	3.18 Kg
Drive Torque	0.3 Kg Cm	0.6 Kg Cm
Free Movement lever (FM)	FM1 & FM2	FM1



HT25



4RR25

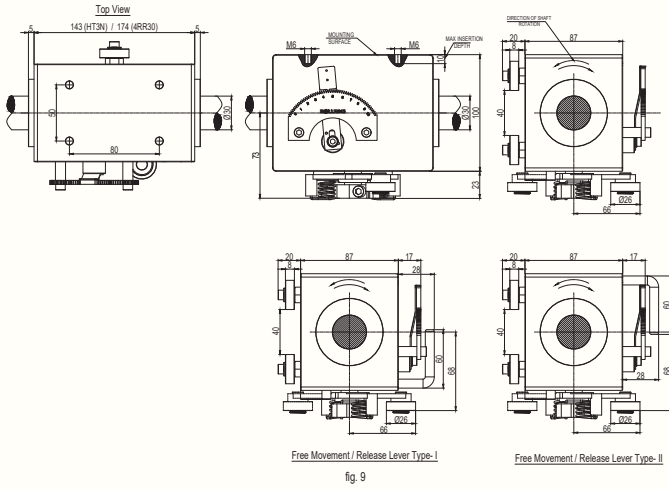


**30
mm**

**Traverse unit for 30 mm diameter shaft
(Models HT3N and 4RR30)**

Description	HT3N	4RR30
Number of Rolling Rings	3	4
Max Side Thrust	21 Kg	42 Kg
Max Pitch	24 mm	24 mm
Max Shaft Speed	1000 RPM	1000 RPM
Max Linear Speed	24 m/min	24 m/min
Weight	3.2 Kg	4 Kg
Drive Torque	1.2 Kg Cm	2.5 Kg Cm
Free Movement lever (FM)	FM1 & FM2	FM1

Model HT3N/4RR30



HT3N



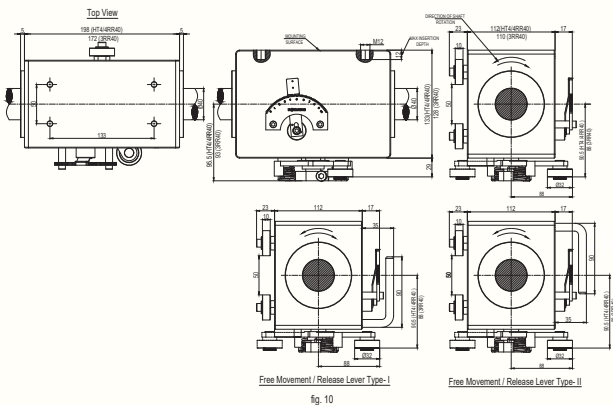
4RR30

**40
mm**

**Traverse unit for 40 mm diameter shaft
(Models HT4, 3RR40 & 4RR40)**

Description	HT4	3RR40	4RR40
Number of Rolling Rings	3	3	4
Max Side Thrust	38 Kg	38 Kg	76 Kg
Max Pitch	29 mm	29 mm	29mm
Max Shaft Speed	750 RPM	750 RPM	750 RPM
Max Linear Speed	22.5 m/min	22.5 m/min	22.5 m/min
Weight	6.6 Kg	5.6 Kg	7.5 Kg
Drive Torque	3.5 Kg Cm	3.5 Kg Cm	4.5 Kg Cm
Free Movement lever (FM)	FM1 & FM2	FM1 & FM2	FM2

Model HT4/3RR40/4RR40



HT4



3RR40



4RR40

**80
mm**

Traverse unit for 80 mm diameter shaft (Models HT8 and 4RR80)

Description	HT8	4RR80
Number of Rolling Rings	3	4
Max Side Thrust	150 Kg	300 Kg
Max Pitch	64 mm	64mm
Max Shaft Speed	300 RPM	250 RPM
Max Linear Speed	19.8 m/min	16.5m/min
Weight	32 Kg	38.7 Kg
Drive Torque	32 Kg Cm	37 Kg Cm
Free Movement lever (FM)	FM1	FM1



HT8



4RR80

Model HT8/4RR80

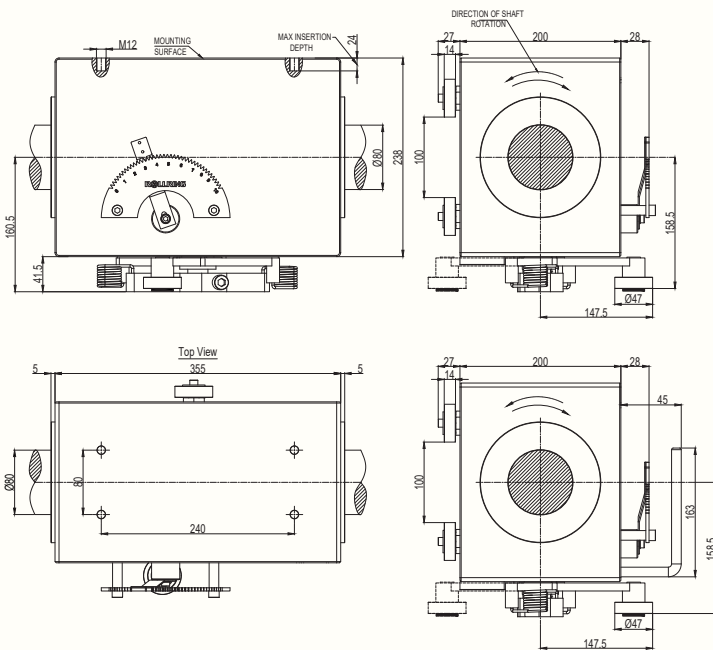


fig. 14 Free Movement / Release Lever Type-I



Optional Accessories

1. Free Movement Lever (Release Lever): This lever allows disengagement of the traverse unit from the shaft. By manually turning the lever by 90 degrees, the traverse unit can be disengaged and positioned on the shaft. Two distinctive types of release levers are available TYPE FM1 and Type FM2

Type FM1 Provided on bottom side available for all models except model HT1

Type FM2 Provided on top side. Available for 3 rolling ring models (HT and 3RR series)



2. Shaft: Shafts Induction Hardened and ground with hard chrome plating can be supplied up to a length of 4000 mm . End machining, circlip grooves, and keyways can be provided as per customer needs.

3. Pneumatically Operated Reversal Mechanism: This mechanism allows clockwise and anticlockwise operation of the traverse unit without any modifications. An air cylinder with a solenoid valve actuated by proximity sensors at end limits is provided.

4. Bi-directional Reversal Mechanism: Suitable for both clockwise and anticlockwise shaft rotation.

5. Remote Control of Linear Speed: A small motor is integrated into the traverse unit to remotely adjust the linear speed

Selection of Traverse Unit

When selecting a Traverse unit model, it's crucial to account for the various forces and factors that influence its performance. This selection process takes into consideration the cumulative effects of the weight of the Traverse unit, associated assemblies being traversed, frictional load, linear speed, and other parameters. For spooling applications, the tension in the material being traversed also needs to be factored in, as well as the distance between the final capstan/support point and the traverse unit. The equation for calculating the side thrust (F) exerted on the traverse unit is as follows:

$$\text{Side thrust } F \text{ (Kg)} = 0.25 (M \times V / T) + Fr + Fz + 0.12 (M \times G) + Fw$$

Where

- M is the total weight to be traversed.
- V is the maximum linear speed in meters per second.
- T is the reversal time in seconds.
- Fr represents the friction load in kilograms.
- G is the gravitational force, approximately 9.8 m/s².
- Fz accounts for any additional applicable force in kilograms.

Fw is the Force related to winding tension calculated as follows

$$Fw = \frac{C \times T}{\sqrt{\left(\frac{C^2}{4} + B^2\right)}}$$

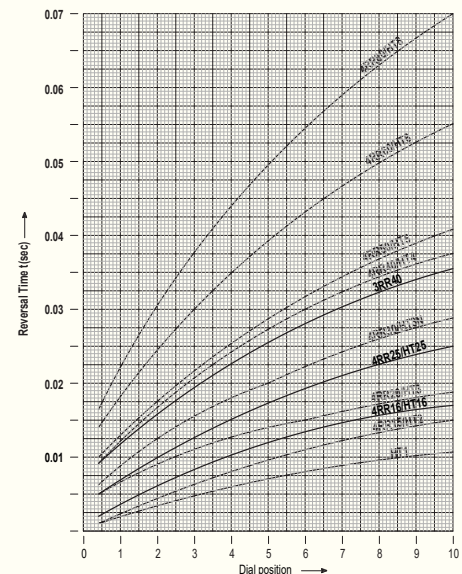


fig . 18

Refer to Figure 15 for visual representation and further details.
Where:

- C is the traverse length in millimetres.
- T is the winding tension in kilograms (usually around 5 to 10% of the maximum tensile strength of the material being wound).
- B is the distance between the traverse and the let-off point in millimetres.

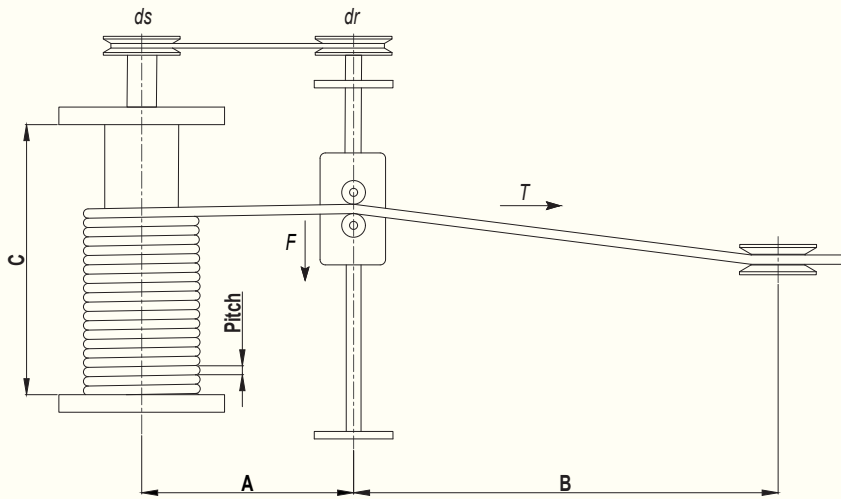


fig. 15

For ease of selection, you can pre-select a model by roughly estimating the required force using the above calculations. This preliminary estimation can guide you in choosing a suitable Traverse unit model that can handle the expected forces and perform optimally for your specific application.

Operation Guide

Side Thrust: This represents the maximum force that can be safely applied. If the force exceeds this value, the unit may slip.

Pitch: Pitch is the linear movement of the traverse unit for one rotation of the shaft. It is adjustable using the dial.

Adjusting the Pitch: To adjust the pitch, press the pointer lever down and shift it along the dial for pitch variation.

Linear Speed: The linear speed depends on the shaft speed and pitch setting.

Shaft Speed: Shaft speed is calculated in relation to the maximum pitch of the traverse unit and the maximum linear speed required.

Recommended Shaft Speed = Max Linear Speed Required / (0.9 × Maximum Pitch of Traverse Unit Selected)

Spooling Application: In spooling applications, drive to the traverse shaft is provided from the bobbin drive shaft to ensure automatic synchronization of speed. Maintain the speed ratio between the bobbin drive and traverse shafts for precise pitch adjustments.

Speed Ratio (dr/ds) = 0.90 × Maximum Pitch of Traverse Unit / Maximum Pitch Required for the Application

Where:

- **dr = Diameter of Pulley or Number of Teeth on Traverse Shaft**
- **ds = Diameter of Pulley or Number of Teeth on Bobbin Drive Shaft**

Refer to Figure 16 for visual representation.

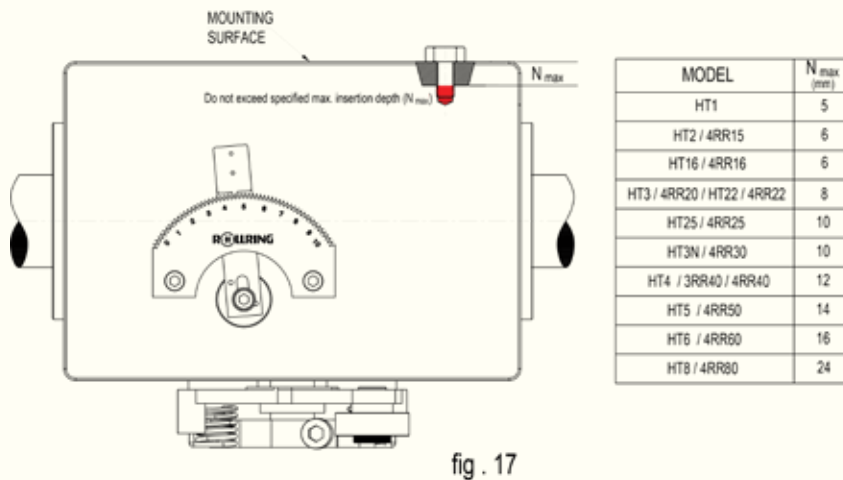
Layer Winding Application: Speed ratio is calculated based on the maximum width or diameter of the material.

Speed Ratio (dr/ds) = 0.90 × Maximum Pitch of Traverse Unit / Maximum Diameter or Width of Material

Maximum Insertion Depth

Ensure that the bolt length used for mounting guide assemblies doesn't exceed the maximum insertion depth to avoid issues. Exceeding the specified value (N) may lead to the unit not reversing at the end limits, a slowdown in operation, different pitches for forward and reverse directions, and potential damage to the reversal plate.

Refer to Figure 17 for the maximum insertion depth for various models.



Installing Traverse Unit on the Shaft

1. Assemble the traverse unit onto the shaft through shaft rotation.
2. Set the pitch to the maximum setting.
3. Insert one end of the shaft into the traverse unit and rotate the shaft.
4. To remove the traverse unit, simply rotate the shaft in the reverse direction.

Note: Chamfer the shaft end to 2X 300 to prevent damage to the Rolling Rings during installation.

Reversal Time:

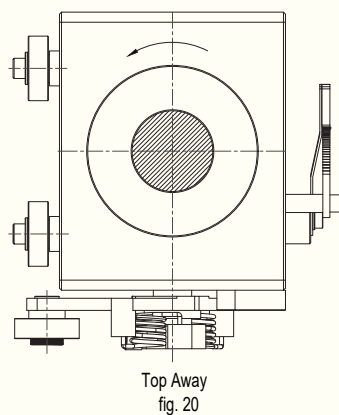
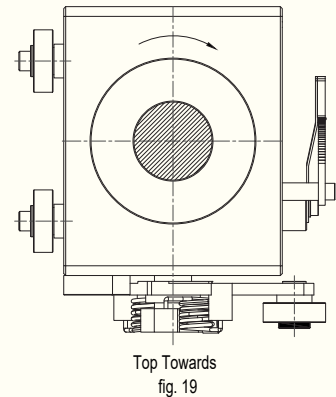
Instantaneous and automatic, depends on linear speed.
Refer Fig 18 for reversal time at various settings.

Direction of Shaft Rotation

By default, Traverse units are typically configured for clockwise rotation of the shaft, unless specific requirements dictate otherwise. Here are two common orientations with explanations and visual references

Top Towards (Clockwise Rotation): In this configuration, the Traverse unit is set up with the bearing on the reversal lever pointing towards the speed setting dial position. This aligns with the default clockwise rotation of the shaft.

Refer to Figure 19 for a visual representation.



Top Away (Anti-Clockwise Rotation): For anti-clockwise rotation of the shaft, the Traverse unit is configured differently. In this case, the bearing on the reversal lever is positioned away from the speed setting dial, accommodating the anti-clockwise rotation of the shaft.

Refer to Figure 20 for a visual representation.

Ensure the correct orientation during installation to match the desired rotation direction of the Traverse unit. This information, along with the accompanying photos and drawings, should guide the proper setup and alignment for your specific application.

Procedure to Modify Traverse Unit

Easily switch between clockwise and anticlockwise rotation by altering the reversal mechanism's position without opening the unit. Follow these steps:

To modify the Traverse unit from clockwise to anticlockwise direction of shaft rotation, or vice versa, you can follow these straightforward steps. This alteration involves adjusting the position of the Reversal mechanism without the need to open the unit. Please adhere to the instructions below for a smooth modification.

1. Remove the Release Lever: Loosen the bolt to detach the Release lever.
2. Remove Springs and Reversal Lever: Carefully take out the springs and the Reversal Lever.
3. Remove Striker Plate: Detach the Striker Plate from its current position.
4. Refit Striker Plate on Opposite Side: Mount the Striker Plate on the opposite side from where it was originally positioned.
5. Refit Reversal Lever with a 180° Turn: Reattach the Reversal Lever after turning it by 180 degrees.
6. Reassemble Springs and Release Lever: Put the Springs and Release Lever back in place. Ensure that the lugs of the springs are not bent. Insert the long lug of the spring into the Reversal Lever and the short lug into the Release lever.
7. Operate Reversal Lever Manually: Manually operate the Reversal lever and listen for the knocking sound.

With these modifications completed, your Traverse unit will be ready to operate in the opposite direction of shaft rotation as desired. Follow these instructions accurately for a successful conversion of the Traverse unit's rotation direction without any complications.

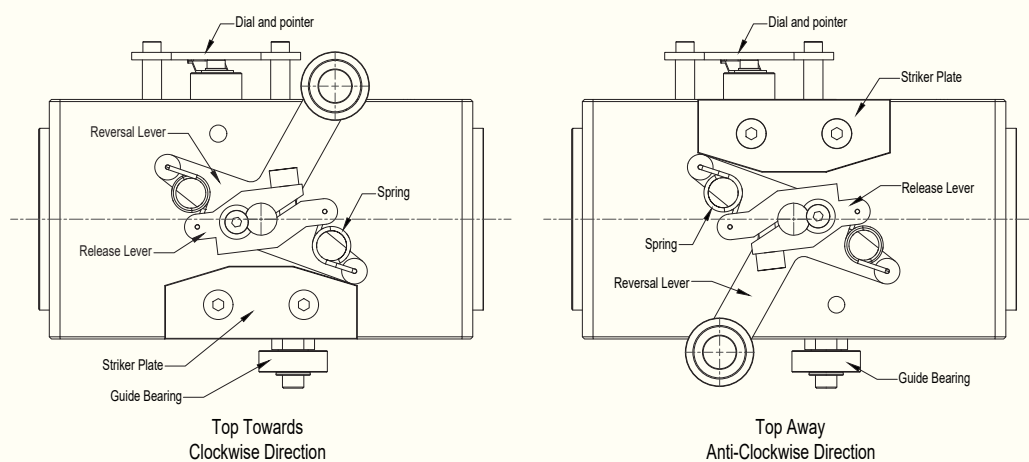


fig. 21

Refer to Figure 21 for a visual guide.

Always follow the manufacturer's guidelines and instructions for proper usage and modification.

Traverse Assembly

Traverse assemblies are expertly tailored to meet the unique needs of our customers. We take into consideration several essential factors during customization

1. Maximum Traverse Stroke Length

Our versatile range includes shafts of varying lengths, extending up to 4000 mm, providing you with options to suit your specific requirements.

2. Guide Assembly Requirement

We can incorporate suitable guide assemblies.

3. Load Carrier

Option to attach a load carrier equipped with linear bearings to the Rollring assembly, . This feature effectively reduces the direct load imposed on the traverse unit, enabling it to handle substantial loads with ease.

Our commitment to customization ensures that you get a traverse assembly perfectly tailored to your needs, whether you require extended stroke lengths, guide assemblies, or the ability to handle heavy loads."



A traverse assembly encompasses key components such as the Traverse unit, Shaft, Mounting brackets, Steady rail, Reversal end limits, and guide assemblies. When dealing with heavy loads, excessive winding tension, or guide overhang, it's advisable to incorporate a Load carrier with linear bearings supported on Guide shafts / Rail for improved performance.

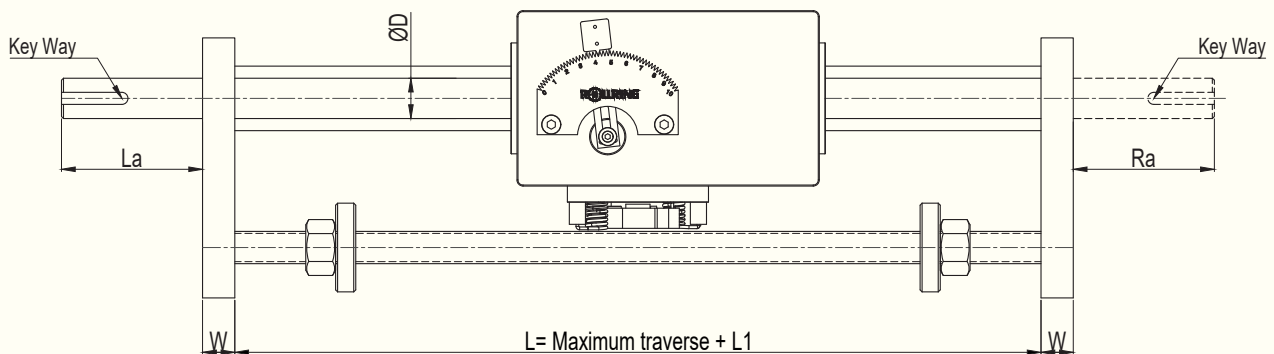
Shaft Specifications: The shaft plays a vital role and should have specific attributes for optimal performance:

Shaft Specifications: Material: C 45

- Shaft Straightness: Within 50 μ per 300 mm
- Surface hardness around 58 to 60 Hrc
- Surface finish and straightness
- Tolerance on diameter: g6
- Heat treatment: High-frequency induction hardening
- Depth of effective hardness: 1 to 2.8 mm
- Corrosion protection: Hard chrome

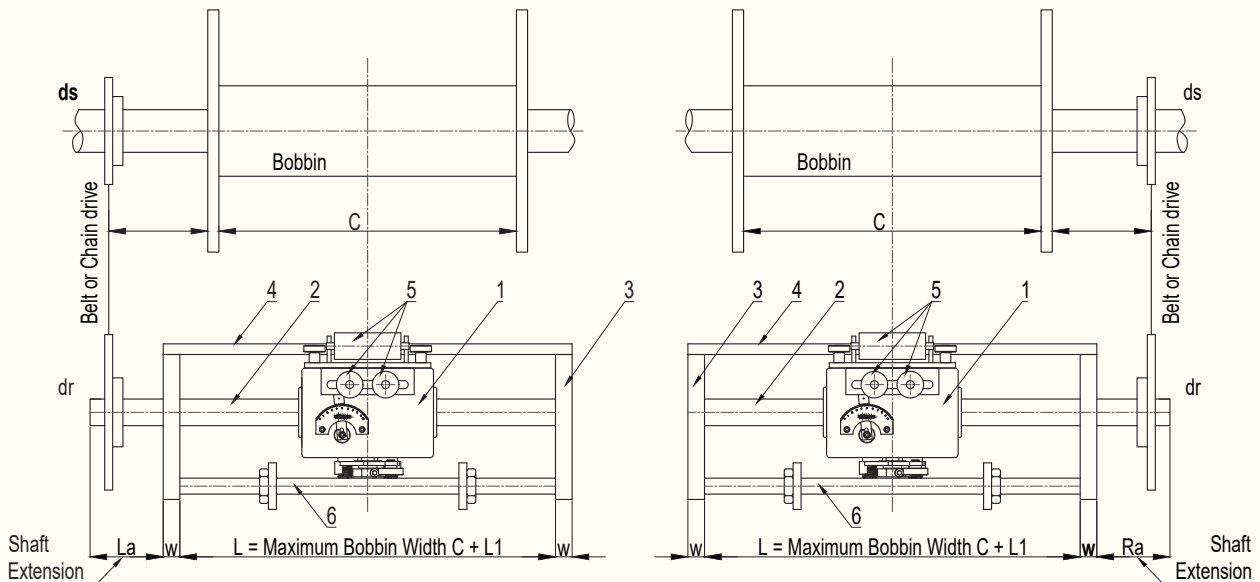
Shaft Length: Minimum length between support brackets = Maximum stroke length + L1 (L1 is related to the length of the traverse unit)

Refer fig 22 below



Traverse Unit Model	HT1	HT2	4RR15	HT3 & HT22	HT16	4RR16	4RR20 & 4RR22	HT25	4RR25	HT3N	4RR30	3RR40	HT4 & 4RR40	HT5 & 4RR50	HT6 & 4RR60	HT8 & 4RR80
L1 (mm)	100	120	140	160	120	140	190	170	190	210	240	230	275	325	420	500

fig . 22



1. Traverse unit 2. Shaft 3. Side bracket 4. Steady rail 5. Wire guide roller or Wire guide pulley 6. Reversal end limit adjustments

fig 24

fig 25

Components

1. **Guide Rail:** Prevents traverse unit rotation on the shaft. Guide Bearing movement should be unhindered on the rail.
2. **Mounting Bracket:** Supports the shaft on a bearing.
3. **Guide Assembly:** Four tapped holes on the traverse unit's top side allow guide assembly mounting. Ensure bolt length adheres to specifications to prevent damage.
4. **Reversal End Limits:** Threaded shaft with nut or plain shaft with adjustable stopper for altering stroke length.
5. **Load Carrier:** Reduces load applied to the traverse unit, enabling traversing of heavy loads. Suitable for applications with heavy guide assemblies, high tension, twisting force, etc.

Types of Load Carriers

1. **Bearing-Mounted Load Carrier:** A plate with radial roller bearings, mounted on the traverse unit, supported by a rail. Suitable for normal applications.



2. **Load Carrier with Linear Bearing and Guide Shaft:** Four linear bearings on a load carrier coupled to traverse unit. Guide assemblies are mounted on the load carrier. Ideal for heavy loads.



3. **Load Carrier with LM Block and Rail:** Four LM Blocks on two Rails mounted on a machined plate. Suitable for very heavy loads.



4. **Bellows:** Bellow type covers are provided on the shaft to prevent accumulation of dust and particles to prevent wear out of Rolling rings and shaft. Specifically for dusty environment



Vertical Traverse Assembly

For vertical take-up or winding, traverse units can operate on vertically mounted shafts. Load carrier with linear bearings and guide shafts is recommended for mounting wire guide pulleys. A counterweight equivalent to the traverse unit's weight is suggested to reduce upward movement force.

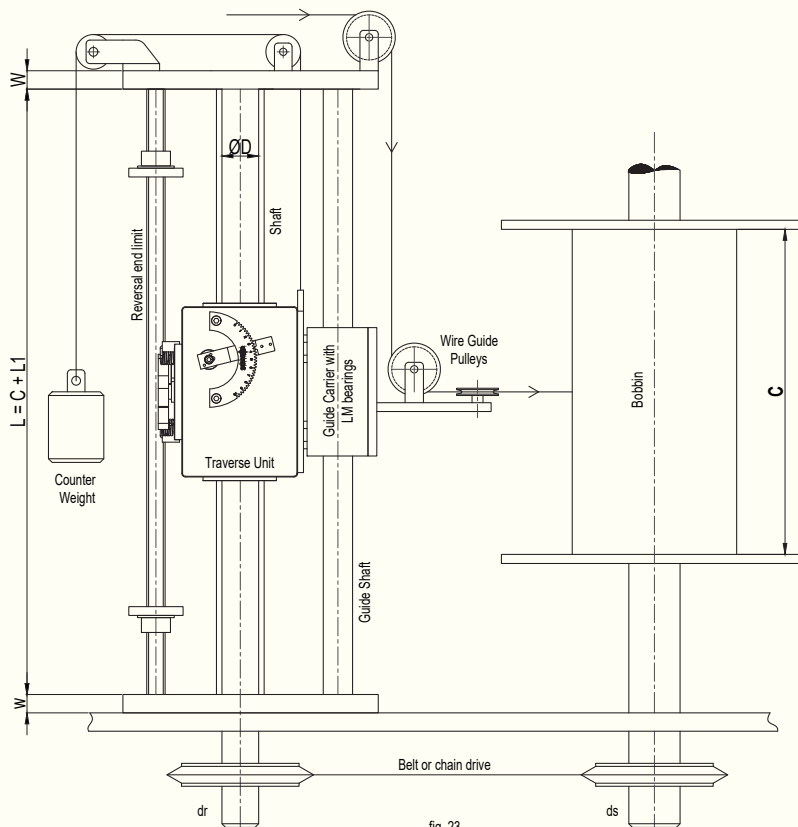


fig. 23

Traverse Assembly with Motorized End Limit Control

A small motor facilitates remote variation of traverse reversal end limit positions.

Bi conical bobbin winding: In the case of biconical bobbin winding, end limits shift as required during winding, sensing the number of bobbin rotations with PLC control. Stroke length increases as needed based on wire diameter and bobbin taper, controlled by a small PLC.

Note : Incorporating these components and considerations ensures the optimal performance and adaptability of traverse assemblies across a wide range of applications.

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