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SMPTE STANDARD**SMPTE 307M-2002**Revision of
SMPTE 307M-1998

for Television Digital Recording — 6.35-mm Type D-7 and Type D-12 Component Format — Tape Cassette



Page 1 of 40 pages

1 Scope

This standard specifies the dimensions for three types of 6.35-mm type D-7 and type D-12 tape cassettes (M, L, and EL) for use with digital recorders.

NOTE – The cassette is used for more than a single recording format. The cassette provides no information to indicate the format of the recording contained on the tape within the cassette.

2 Measurements

2.1 Tests and measurements on cassette parameters shall be carried out under the following atmospheric conditions:

- Temperature: $20^{\circ}\text{C} \pm 1^{\circ}\text{C}$
- Relative humidity: $(50 \pm 2)\%$
- Barometric pressure: 86 kPa to 106 kPa
- Stabilization time: 24 hours

3 Video tape cassette**3.1 General specifications**

3.1.1 The dimensions of the three cassettes used for recording shall be in accordance with figures 1 to 29.

3.1.2 General tolerances for dimensions, except those for which tolerances are otherwise specified, shall be as indicated in table 1.

3.1.3 The three types of cassette shall be identified as:

- Medium: M
- Large: L
- Extended large: EL

The size of the EL cassette is the same as the L cassette except for the reel size.

NOTE – Annex A shows the adapter size for the small cassette which is specified in IEC 61834-1.

3.1.4 Tape length and tape thickness for the three types of cassette shall be as given in table 2.

Table 1 – Mechanical tolerances

Length		Tolerance
Over	To	mm
0	30	± 0.1
30	50	± 0.15
50		± 0.2
Angle		$\pm 1.0^\circ$

Table 2 – Tape length and tape thickness of M, L and EL cassettes

Tape cassette	Length (m)	Thickness (μm)
M	27 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	8.8
	51 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	
	70 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	
	96 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	
	137 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	
L	72 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	8.8
	137 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	
	190 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	
	194 $\begin{smallmatrix} +1 \\ -0 \end{smallmatrix}$	
	259 $\begin{smallmatrix} +2 \\ -0 \end{smallmatrix}$	
EL	263 $\begin{smallmatrix} +2 \\ -0 \end{smallmatrix}$	6.7
	377 $\begin{smallmatrix} +3 \\ -0 \end{smallmatrix}$	

3.1.5 The magnetic coating on the tape shall face out of the cassette as specified in figures 3 to 5.

3.2 Datum planes

3.2.1 Datum plane Z is determined by datum areas A, B, and C as specified in figures 6 to 8.

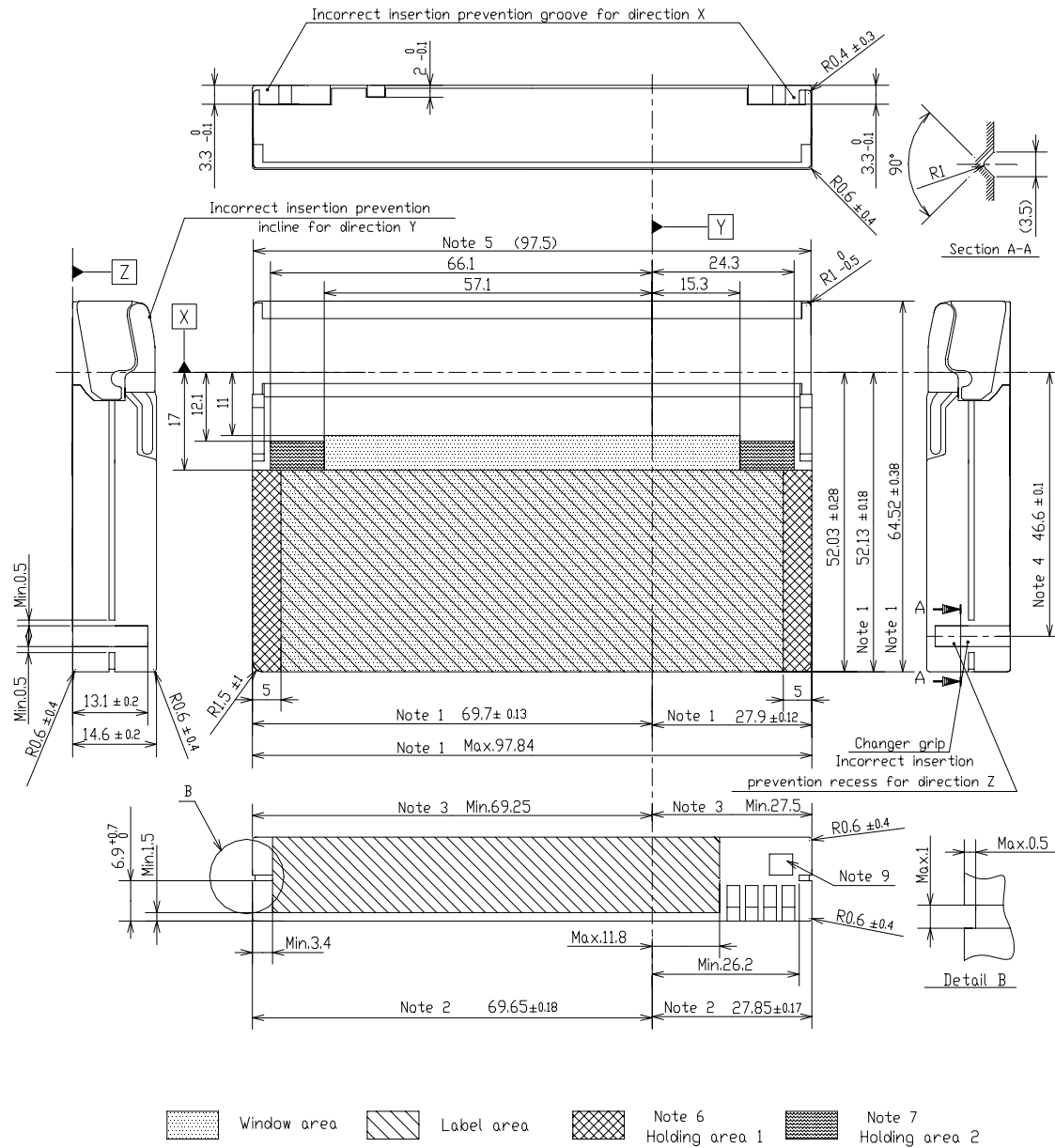
3.2.2 Datum plane X shall be orthogonal to datum plane Z and shall run through the center of datum hole (A) and datum hole (B) as specified in figures 9 to 11.

3.2.3 Datum plane Y shall be orthogonal to both datum plane X and datum plane Z and shall run through the center of datum hole (A) as specified in figures 9 to 11.

3.3 Window and labels

3.3.1 Window and label areas shall be as specified in figures 1 and 2.

3.3.2 Labels attached to the cassette shall not extend beyond the external dimensions as shown in figures 1 and 2.

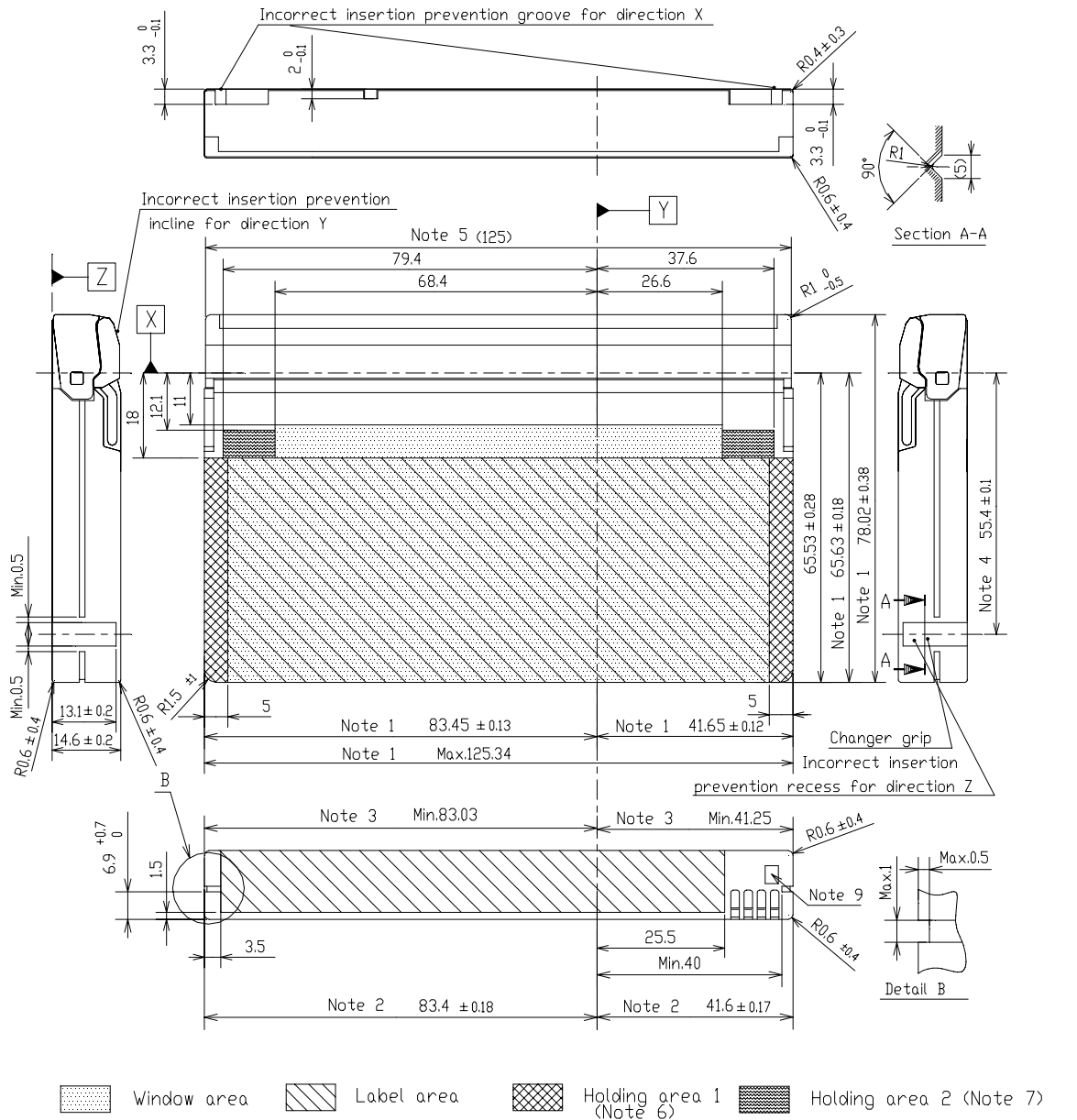


Dimensions in millimeters

NOTES

- 1 The maximum outside dimension of the shell.
- 2 The tolerance applies to the region up to 6.7 mm from datum plane Z.
- 3 The dimension applies to the upper half.
- 4 The tolerance applies to the region up to 6.7 mm from datum plane Z. General tolerance applies beyond 6.7 mm.
- 5 The lid width shall be smaller than the shell width.
- 6 The cassette shall be held in the recorder/player within the area indicated.
- 7 When the lid is open, a portion of this area may not be available for the cassette holding mechanism (see figure 26).
- 8 The surface roughness of holding areas 1 and 2 shall not exceed $40 \mu\text{m Rmax}$.
- 9 Indication of accidental erasure prevention shall be placed in this area (see figure 12 for the accidental erasure prevention hole dimensions).

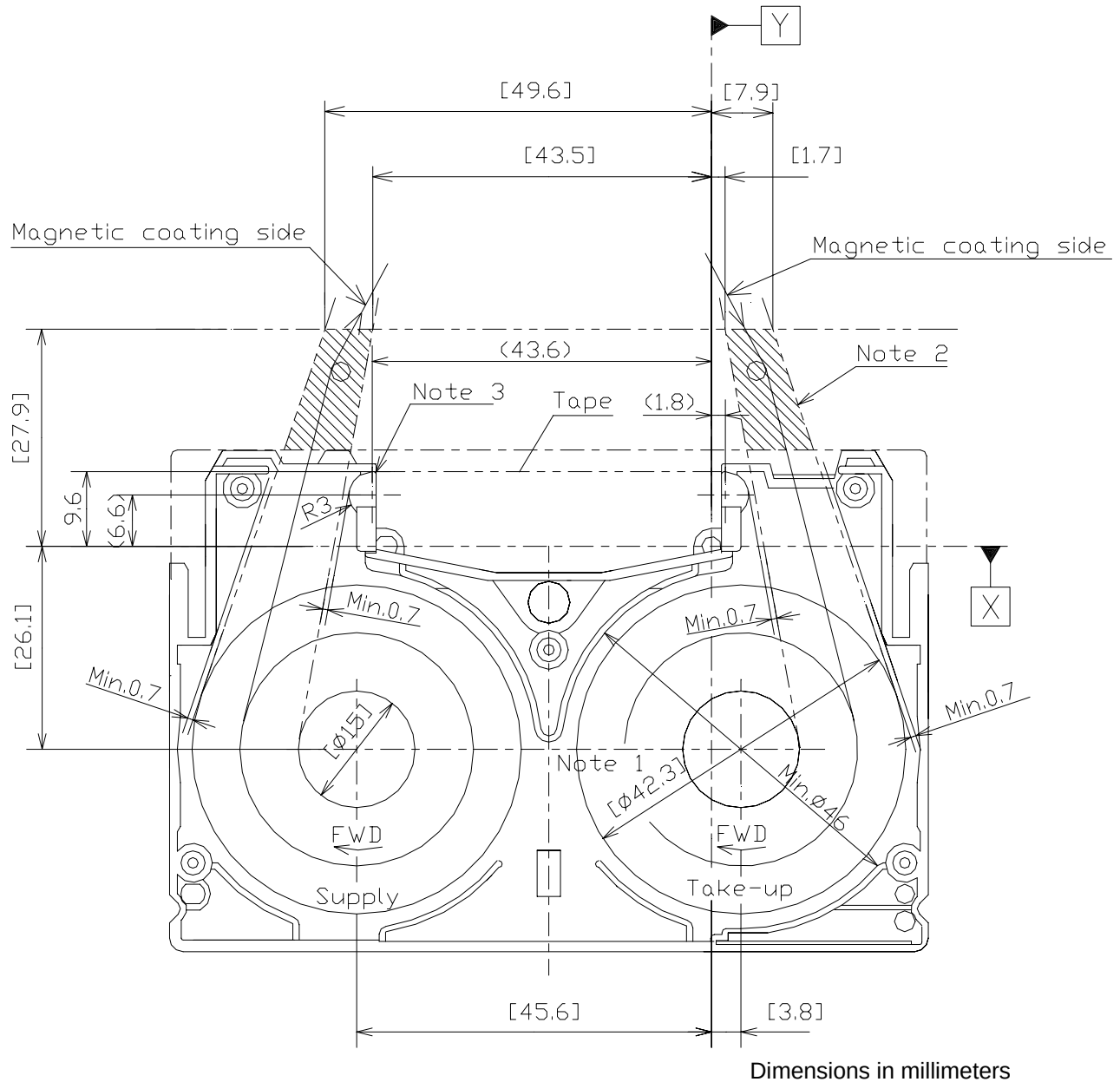
Figure 1 – Top and side views of M cassette



NOTES

- 1 The maximum outside dimension of the shell.
- 2 The tolerance applies to the region up to 6.7 mm from datum plane Z.
- 3 The dimension applies to the upper half.
- 4 The tolerance applies to the region up to 6.7 mm from datum plane Z. General tolerance applies beyond 6.7 mm.
- 5 The lid width shall be smaller than the shell width.
- 6 The cassette shall be held in the recorder/player within the area indicated.
- 7 When the lid is open, a portion of this area may not be available for the cassette holding mechanism (see figure 27).
- 8 The surface roughness of holding areas 1 and 2 shall not exceed 40 μm Rmax.
- 9 Indication of accidental erasure prevention shall be placed in this area (see figure 13 for L cassette and figure 14 for EL cassette for the accidental erasure prevention hole dimensions).

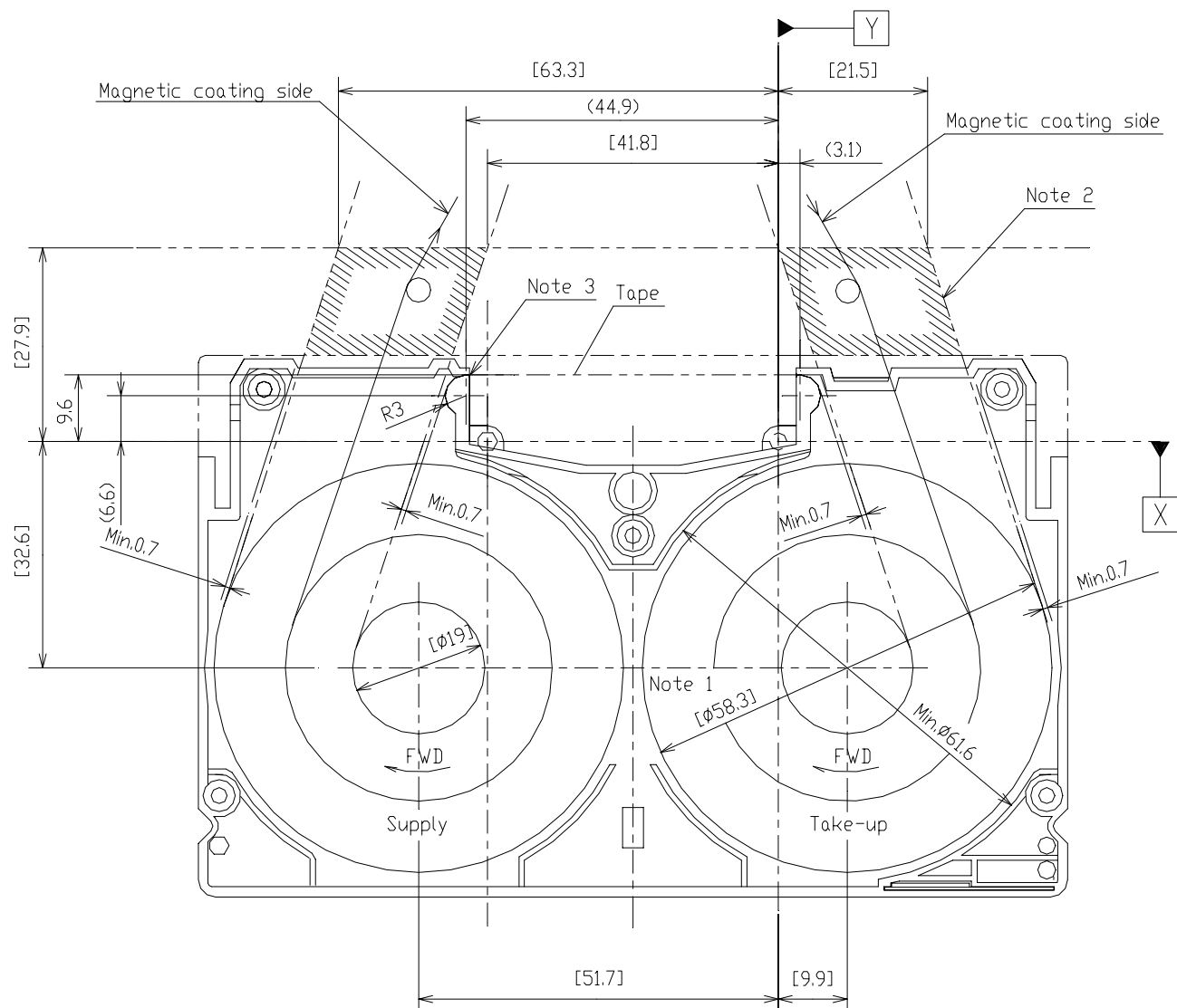
Figure 2 – Top and side views of L and EL cassettes



NOTES

- 1 Dimensions in brackets, derived from a packed tape diameter of 42.3 mm, indicate area normally occupied by tape pass.
- 2 The first guidepost shall be within the tape path area as indicated.
- 3 The corner shall be rounded.

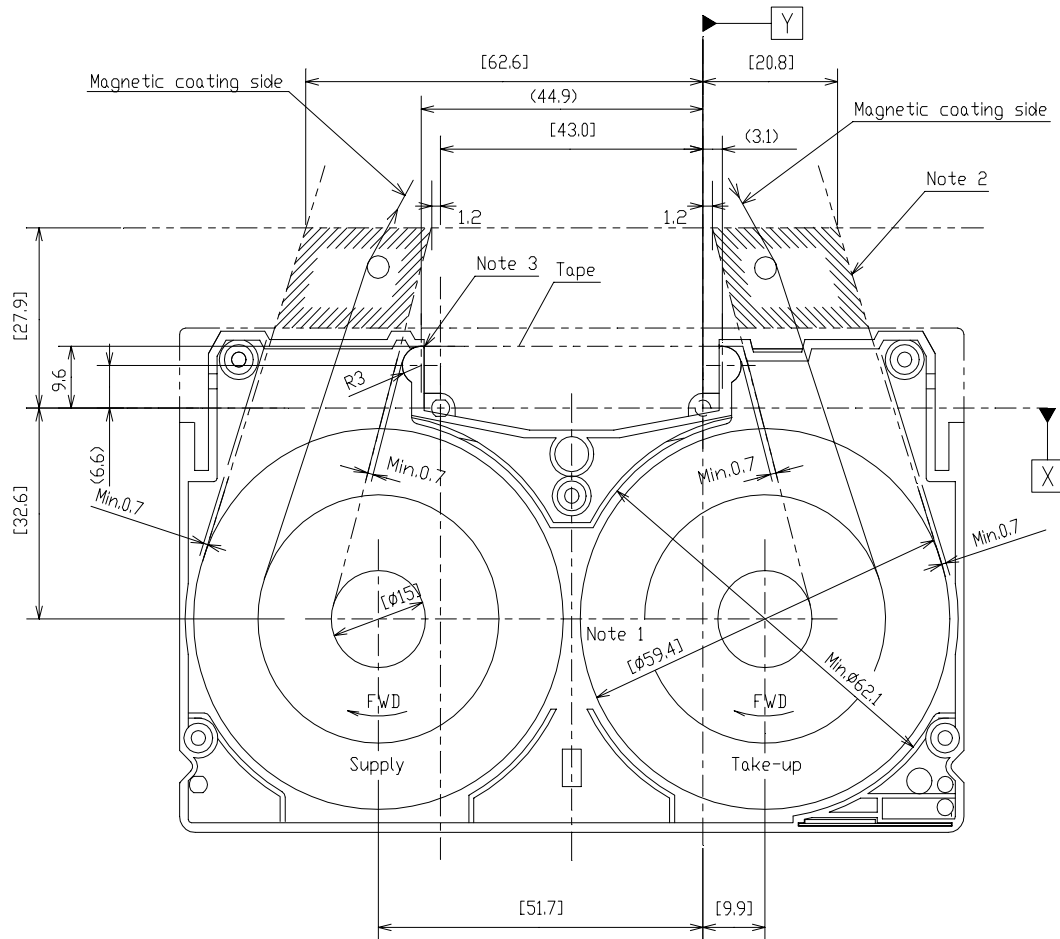
Figure 3 – Internal structure and tape path for M cassette



NOTES

- 1 Dimensions in brackets, derived from a packed tape diameter of 58.3 mm, indicate area normally occupied by tape pass.
- 2 The first guidepost shall be within the tape path area as indicated.
- 3 The corner shall be rounded.

Figure 4 – Internal structure and tape path for L cassette

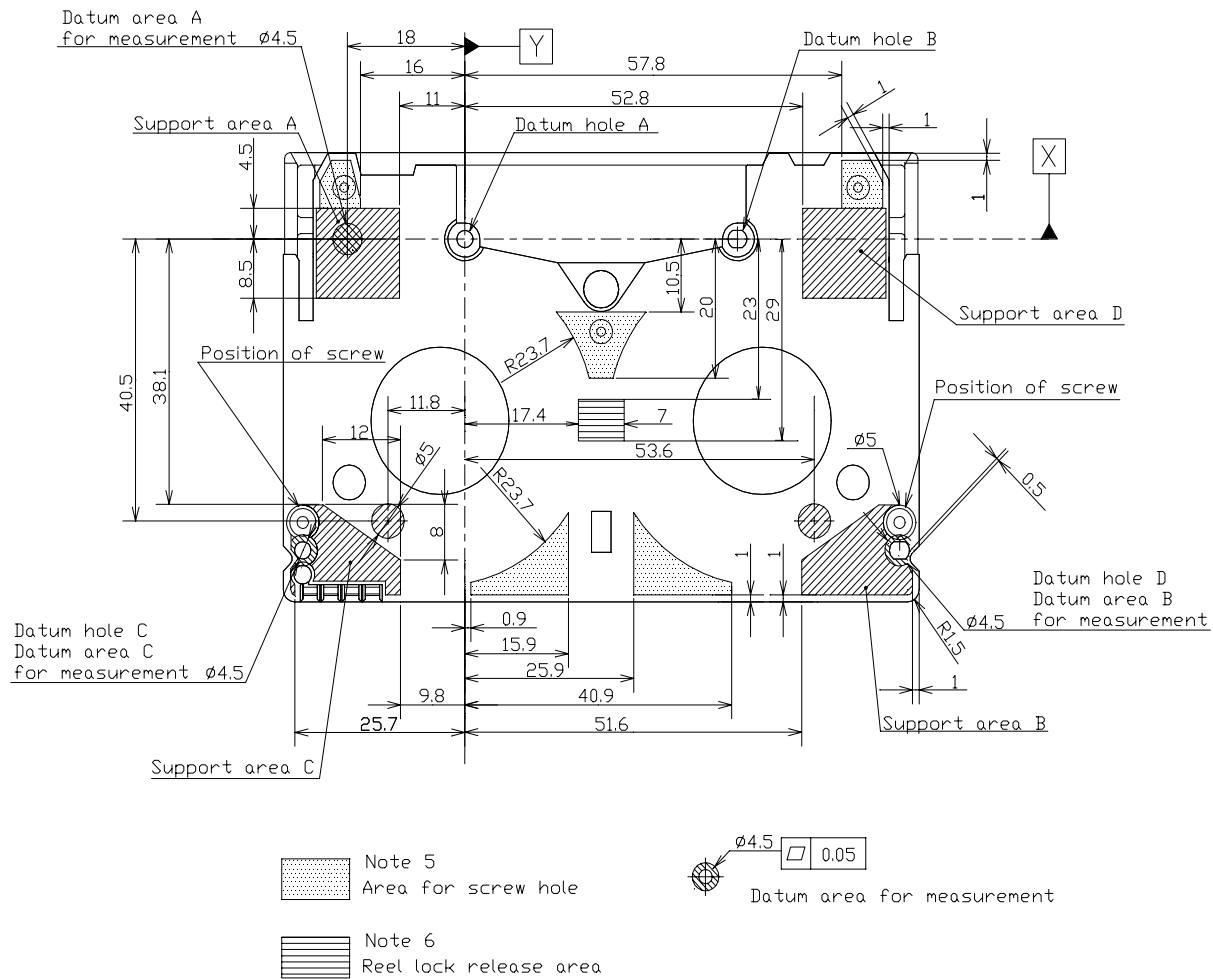


Dimensions in millimeters

NOTES

- 1 Dimensions in brackets, derived from a packed tape diameter of 58.3 mm, indicate area normally occupied by tape pass.
- 2 The first guidepost shall be within the tape path area as indicated.
- 3 The corner shall be rounded.

Figure 5 – Internal structure and tape path for EL cassette

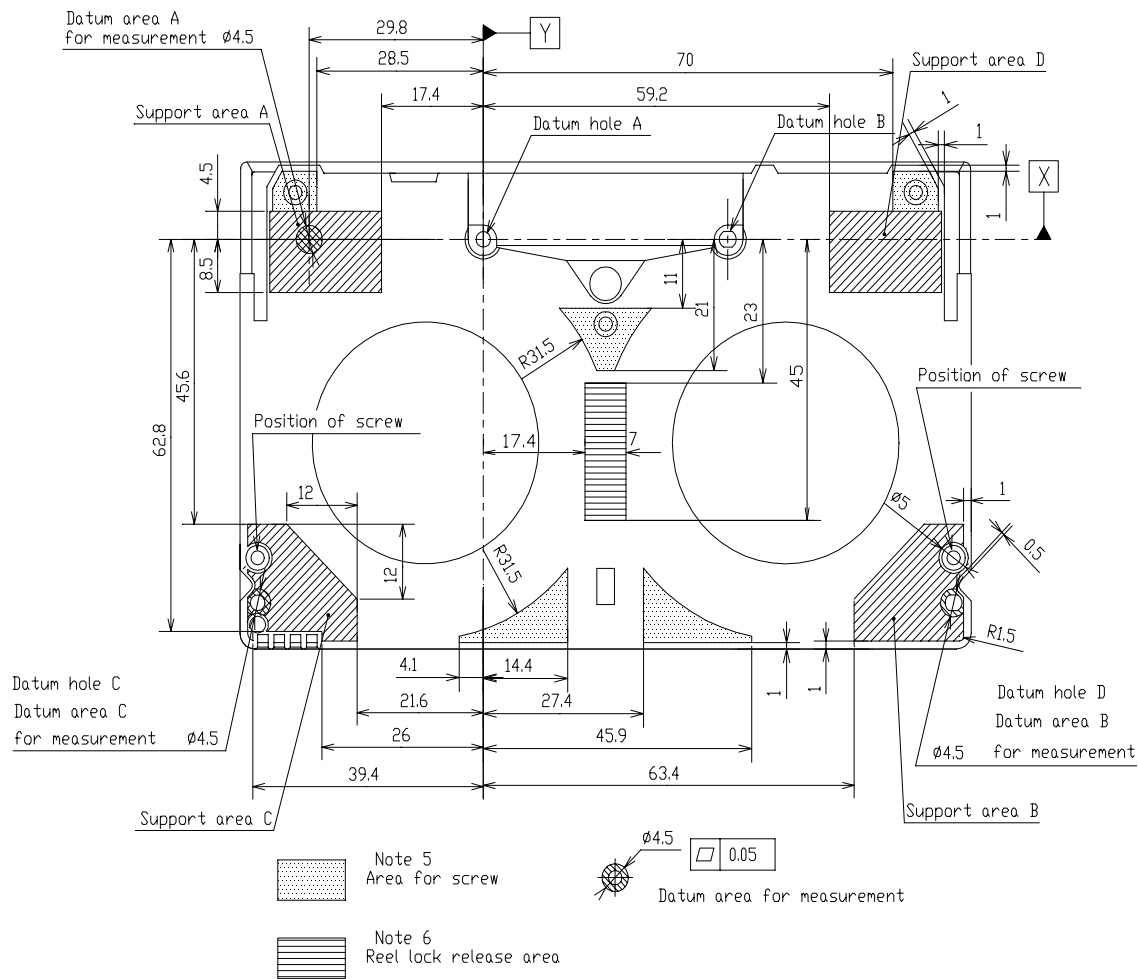


Dimensions in millimeters

NOTES

- 1 Support areas A, B, and C shall be coplanar with datum plane Z within ± 0.15 mm.
- 2 Support area D shall be coplanar with datum plane Z within ± 0.2 mm.
- 3 Datum areas may be used as support areas.
- 4 Unless specified otherwise, datum areas and support areas exclude 0.5 mm around holes and edges with the exception of datum holes.
- 5 The screw holes, if required, must be located within the area indicated.
- 6 Reel lock release area must be flat. If an indentation is made in the reel lock area, it must be of a depth no greater than 0.2 mm from the cassette surface. The indentation should be beveled with an angle to the surface of less than 35° .

Figure 6 – Datum areas and support areas for M cassette

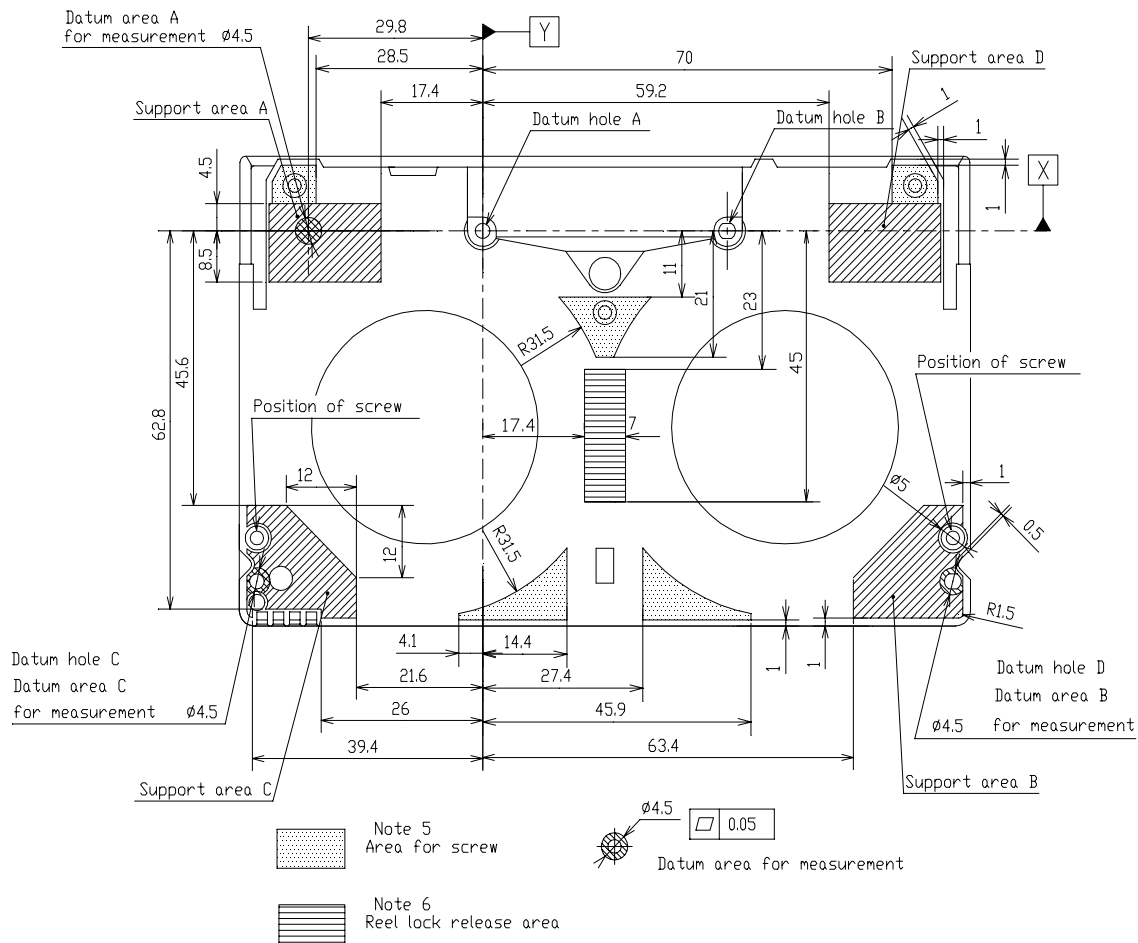


Dimensions in millimeters

NOTES

- Support areas A, B, and C shall be coplanar with datum plane Z within ± 0.15 mm.
- Support area D shall be coplanar with datum plane Z within ± 0.2 mm.
- Datum areas may be used as support areas.
- Unless specified otherwise, datum areas and support areas exclude 0.5 mm around holes and edges with the exception of datum holes.
- The screw holes, if required, must be located within the area indicated.
- Reel lock release area must be flat. If an indentation is made in the reel lock area, it must be of a depth no greater than 0.2 mm from the cassette surface. The indentation should be beveled with an angle to the surface of less than 35° .

Figure 7 – Datum areas and support areas for L cassette



Dimensions in millimeters

NOTES

- 1 Support areas A, B, and C shall be coplanar with datum plane Z within ± 0.15 mm.
- 2 Support area D shall be coplanar with datum plane Z within ± 0.2 mm.
- 3 Datum areas may be used as support areas.
- 4 Unless specified otherwise, datum areas and support areas exclude 0.5 mm around holes and edges with the exception of datum holes.
- 5 The screw holes, if required, must be located within the area indicated.
- 6 Reel lock release area must be flat. If an indentation is made in the reel lock area, it must be of a depth no greater than 0.2 mm from the cassette surface. The indentation should be beveled with an angle to the surface of less than 35° .

Figure 8 – Datum areas and support areas for EL cassette

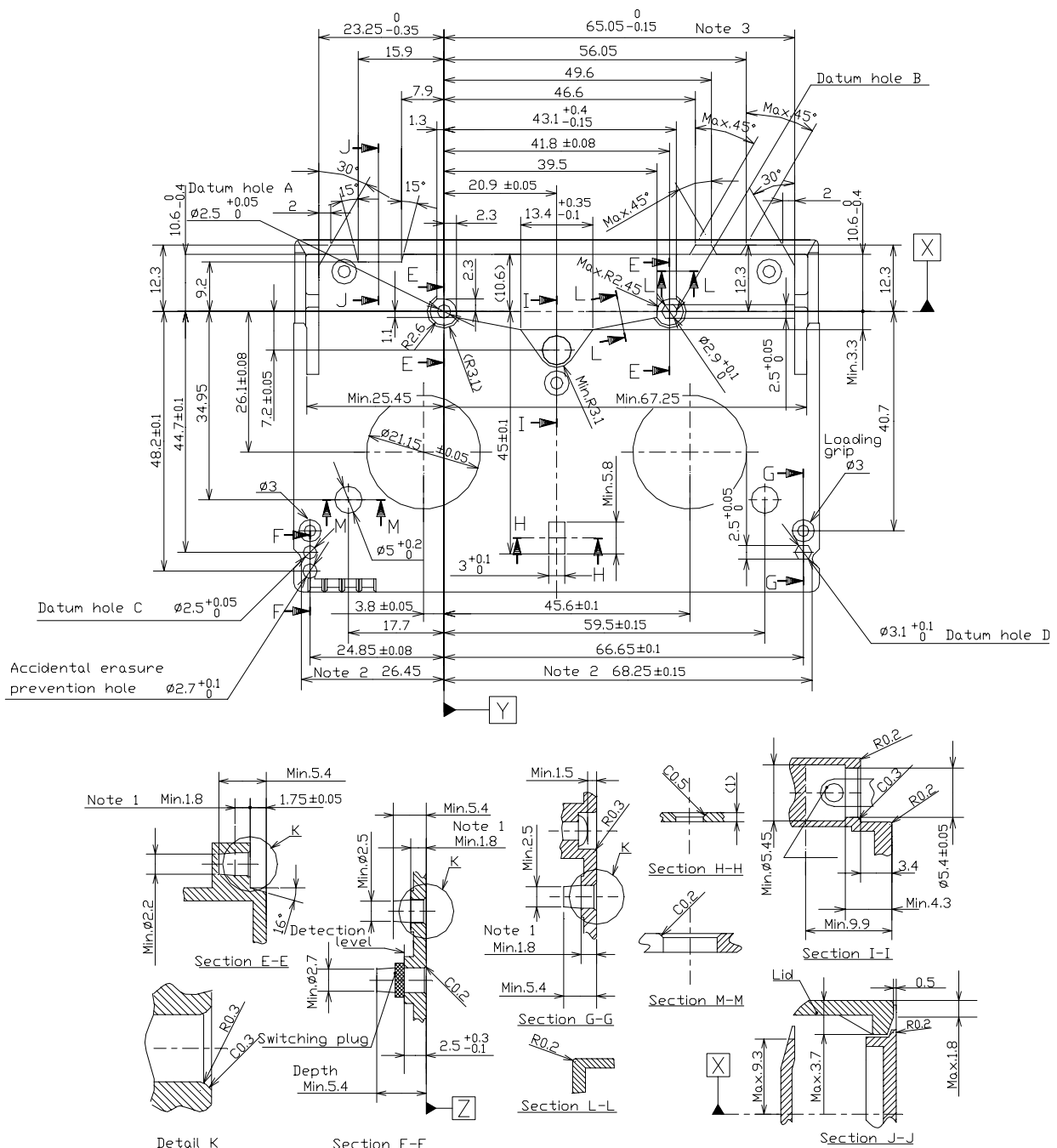
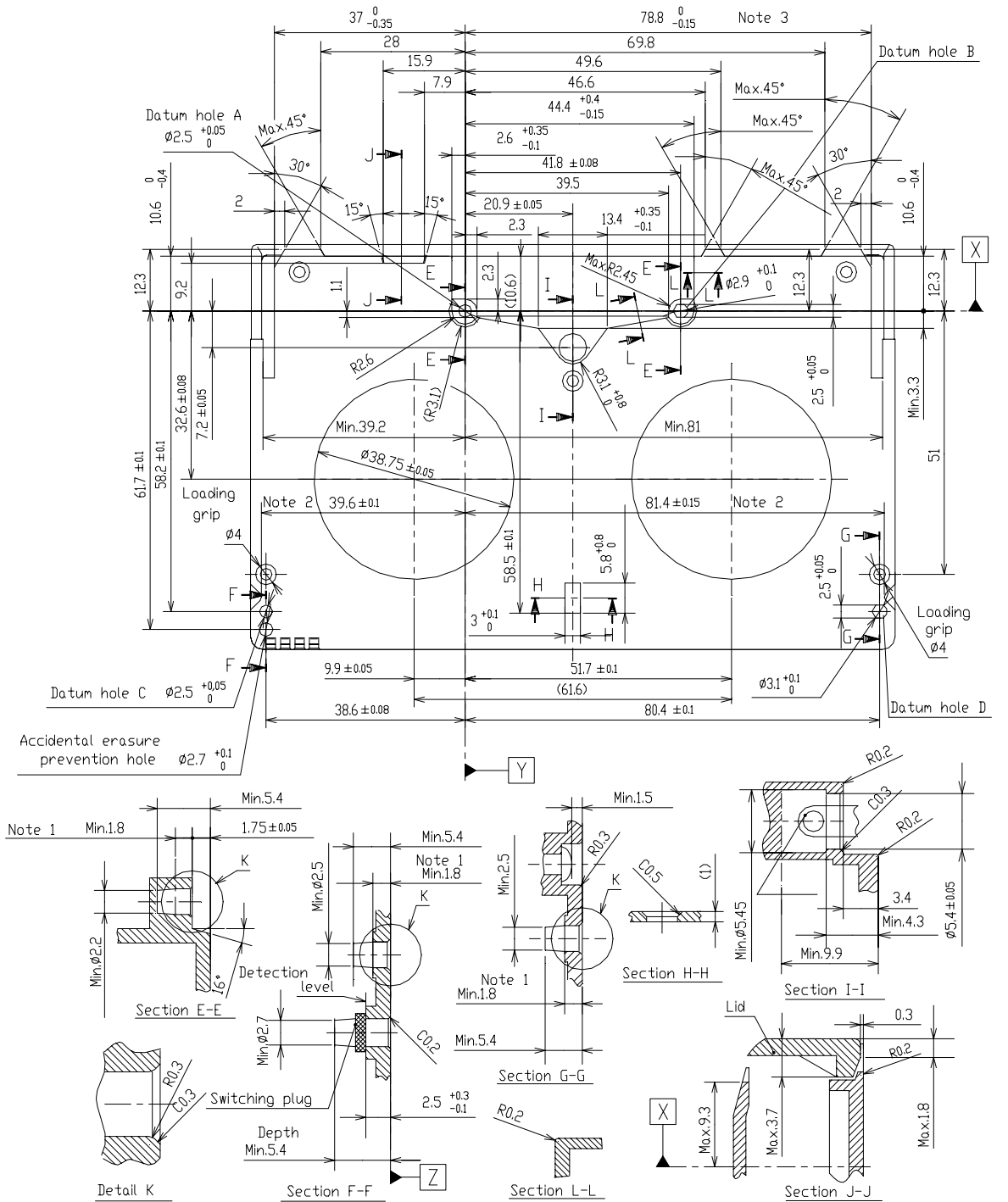


Figure 9 – Bottom view of M cassette



Dimensions in millimeters

NOTES

- 1 Datum holes A, B, C, and D must maintain their respective dimensions through a depth of 1.8 mm.
- 2 The tolerance applies to the region up to 6.7 mm from datum plane Z.
- 3 The tolerance applies to the region up to 4.1 mm from datum plane Z.

Figure 10 – Bottom view of L cassette