

M55

Ball Screw Drive, Slide Guide

» Ordering key - see page 199
 » Accessories - see page 127
 » Additional data - see page 184

General Specifications

| Parameter | M55 |
|---------------------------|---|
| Profile size (w × h) [mm] | 58 × 55 |
| Type of screw | ball screw with single nut |
| Carriage sealing system | self-adjusting steel cover band |
| Screw supports | number of screw supports to be specified by customer at order |
| Lubrication | lubrication of ball screw |
| Included accessories | none |

Performance Specifications

| Parameter | | M55 |
|---|---------------------|--------------------------------------|
| Stroke length (S max), maximum | [mm] | 3000 |
| Linear speed, maximum | [m/s] | 1,0 |
| Acceleration, maximum | [m/s ²] | 8 |
| Repeatability | [± mm] | 0,05 |
| Input speed, maximum ball nut units / composite nut units | [rpm] | 3000 / 1500 |
| Operation temperature limits | [°C] | -20 – 70 |
| Dynamic load (Fx), maximum ball nut units / composite nut units | [N] | 1000 / 500 |
| Dynamic load (Fy), maximum | [N] | 400 ¹ |
| Dynamic load (Fz), maximum | [N] | 400 ¹ |
| Dynamic load torque (Mx), maximum | [Nm] | 9 ¹ |
| Dynamic load torque (My), maximum | [Nm] | 23 ¹ |
| Dynamic load torque (Mz), maximum | [Nm] | 23 ¹ |
| Drive shaft force (Frd), maximum | [N] | 200 |
| Drive shaft torque (Mta), maximum | [Nm] | 12 |
| Screw diameter (d0) | [mm] | 16 |
| Screw lead (p) ball nut units / composite nut units | [mm] | 5, 5,08, 10, 20 / 32 |
| Weight of unit with zero stroke of every 100 mm of stroke of carriage of option single screw support of option double screw supports | [kg] | 3,06 0,44 1,20 0,83 1,88 |

¹ Value for the complete unit

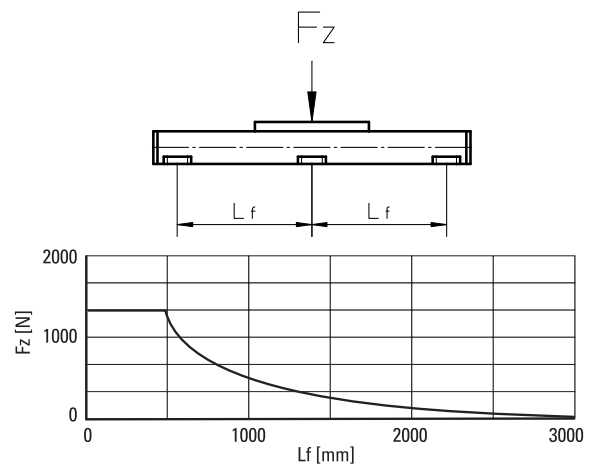
Carriage Idle Torque (M_{idle}) [Nm]

| Input speed [rpm] | Screw lead [mm] | | | | |
|---------------------------|-----------------|----------|--------|--------|---------------------|
| | p = 5 | p = 5,08 | p = 10 | p = 20 | p = 32 ¹ |
| 500 - no screw supports | 0,10 | 0,10 | 0,15 | 0,30 | 0,80 |
| 500 - with screw supports | 0,13 | 0,13 | 0,27 | 0,45 | 1,00 |

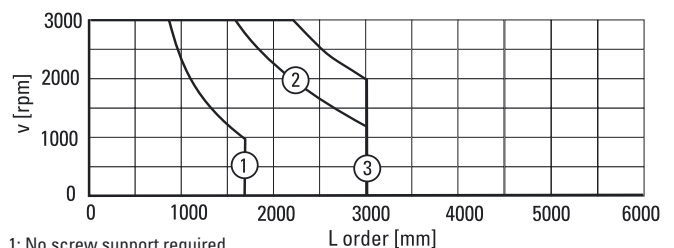
¹ Value for composite nut.

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile



Critical Speed

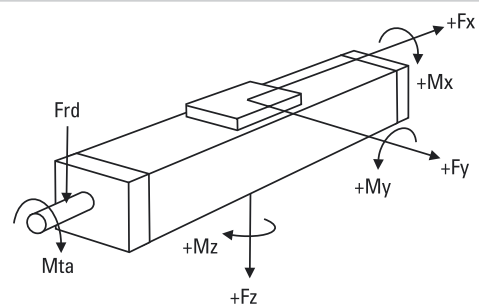


1: No screw support required

2: Single screw support required

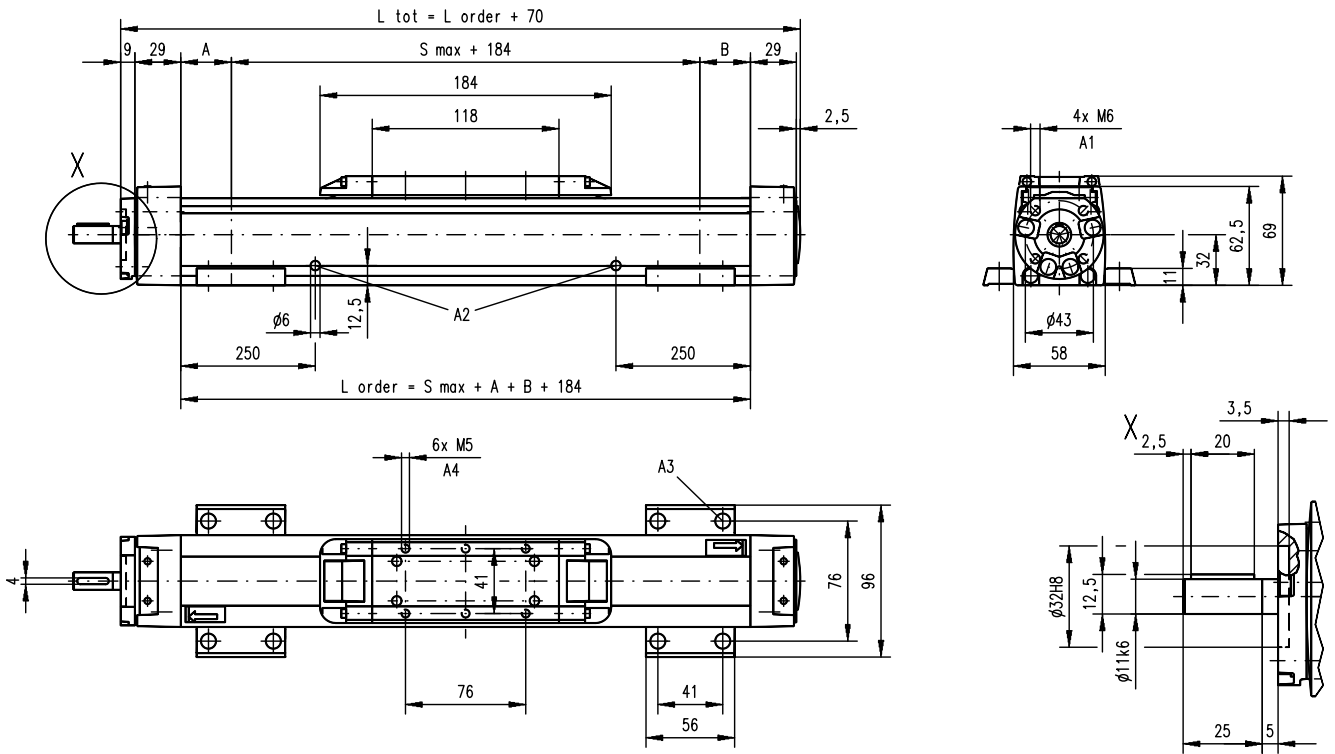
3: Double screw supports required

Definition of Forces



M55

Ball Screw Drive, Slide Guide



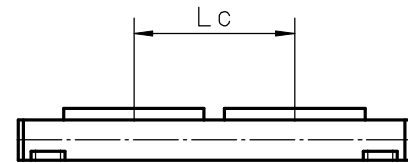
A1: depth 7,5, Heli coil
A2: lubrication holes

A3: $\varnothing 9,5/\varnothing 5,5$ for socket head cap screw M5
A4: depth 7,5, Heli coil

| Screw support configuration | A [mm] | B [mm] | Ordering length (L order) [mm] | Total length (L tot) [mm] |
|-----------------------------|--------|--------|-------------------------------------|----------------------------|
| No screw support | 6 | 6 | $L_{order} = S_{max} + A + B + 184$ | $L_{tot} = L_{order} + 70$ |
| Single screw support | 32 | 32 | $L_{order} = S_{max} + A + B + 184$ | $L_{tot} = L_{order} + 70$ |
| Double screw supports | 83 | 83 | $L_{order} = S_{max} + A + B + 184$ | $L_{tot} = L_{order} + 70$ |

Double Carriages

| Parameter | M55 | |
|--|------|-------------------|
| Minimum distance between carriages (Lc) | [mm] | 200 |
| Dynamic load (Fy), maximum | [N] | 600 |
| Dynamic load (Fz), maximum | [N] | 600 |
| Dynamic load torque (My), maximum | [Nm] | $Lc^1 \times 0,3$ |
| Dynamic load torque (Mz), maximum | [Nm] | $Lc^1 \times 0,3$ |
| Force required to move second carriage | [N] | 35 |
| Weight of unit with zero stroke of carriages | [kg] | 5,14 2,40 |



| Screw support configuration | A [mm] | B [mm] | Ordering length (L order) [mm] | Total length (L tot) [mm] |
|-----------------------------|--------|--------|--|----------------------------|
| No screw support | 6 | 6 | $L_{order} = S_{max} + A + B + Lc + 184$ | $L_{tot} = L_{order} + 70$ |
| Single screw support | 32 | 32 | $L_{order} = S_{max} + A + B + Lc + 184$ | $L_{tot} = L_{order} + 70$ |
| Double screw supports | 83 | 83 | $L_{order} = S_{max} + A + B + Lc + 184$ | $L_{tot} = L_{order} + 70$ |

¹ Value in mm

M75

Ball Screw Drive, Slide Guide

» Ordering key - see page 199
 » Accessories - see page 127
 » Additional data - see page 184

General Specifications

| Parameter | M75 |
|---------------------------|---|
| Profile size (w × h) [mm] | 86 × 75 |
| Type of screw | ball screw with single nut |
| Carriage sealing system | self-adjusting steel cover band |
| Screw supports | number of screw supports to be specified by customer at order |
| Lubrication | lubrication of ball screw |
| Included accessories | none |

Performance Specifications

| Parameter | M75 |
|---|-----------------------|
| Stroke length (S max), maximum | [mm] 4000 |
| Linear speed, maximum | [m/s] 1,6 |
| Acceleration, maximum | [m/s ²] 8 |
| Repeatability | [± mm] 0,05 |
| Input speed, maximum ball nut units / composite nut units | [rpm] 5000 / 1500 |
| Operation temperature limits | [°C] -20 – 70 |
| Dynamic load (F _x), maximum ball nut units / composite nut units | [N] 2500 / 1250 |
| Dynamic load (F _y), maximum | [N] 1485 ¹ |
| Dynamic load (F _z), maximum | [N] 1485 ¹ |
| Dynamic load torque (M _x), maximum | [Nm] 49 ¹ |
| Dynamic load torque (M _y), maximum | [Nm] 85 ¹ |
| Dynamic load torque (M _z), maximum | [Nm] 85 ¹ |
| Drive shaft force (F _{rd}), maximum | [N] 600 |
| Drive shaft torque (M _{ta}), maximum | [Nm] 30 |
| Screw diameter (d _o) | [mm] 20 |
| Screw lead (p) ball nut units / composite nut units | [mm] 5, 12,7, 20 / 5 |
| Weight | [kg] |
| of unit with zero stroke | 6,07 |
| of every 100 mm of stroke | 0,82 |
| of carriage | 1,70 |
| of option single screw support | 1,70 |
| of option double screw supports | 3,58 |

¹ Value for the complete unit

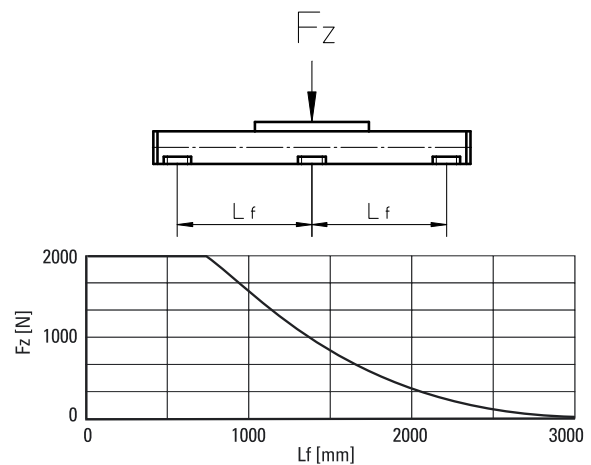
Carriage Idle Torque (M_{idle}) [Nm]

| Input speed [rpm] | Screw lead [mm] | | | |
|---------------------------|-----------------|--------------------|----------|--------|
| | p = 5 | p = 5 ¹ | p = 12,7 | p = 20 |
| 500 - no screw supports | 0,10 | 0,20 | 0,24 | 0,37 |
| 500 - with screw supports | 0,15 | 0,50 | 0,39 | 0,57 |

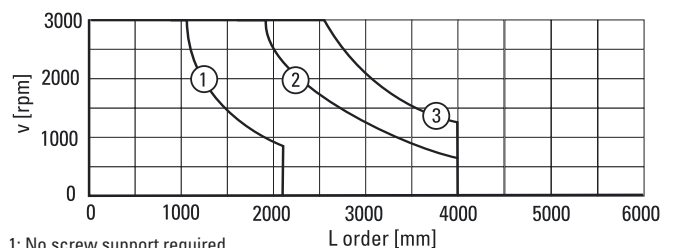
¹ Value for composite nut.

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile



Critical Speed

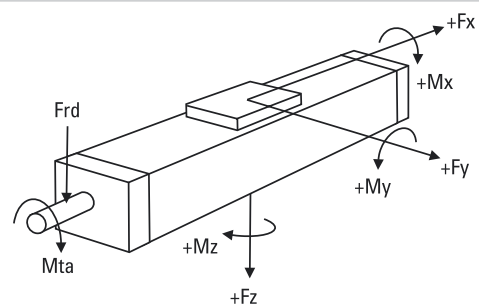


1: No screw support required

2: Single screw support required

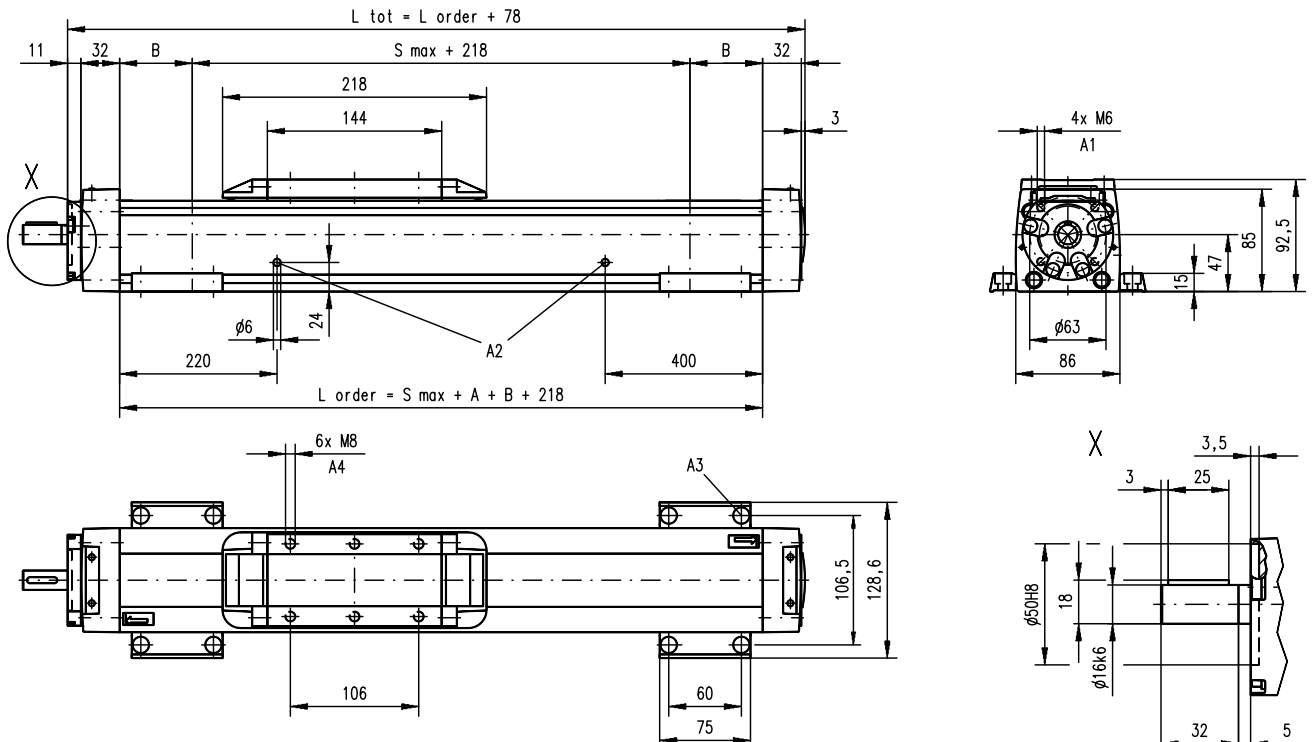
3: Double screw supports required

Definition of Forces



M75

Ball Screw Drive, Slide Guide



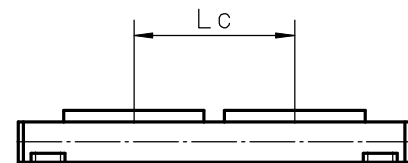
A1: depth 9, Heli coil
A2: lubrication holes

A3: ø13,5/ø8,5 for socket head cap screw M8
A4: depth 8, Heli coil

| Screw support configuration | A [mm] | B [mm] | Ordering length (L order) [mm] | Total length (L tot) [mm] |
|-----------------------------|--------|--------|-------------------------------------|----------------------------|
| No screw support | 5 | 5 | $L_{order} = S_{max} + A + B + 218$ | $L_{tot} = L_{order} + 78$ |
| Single screw support | 60 | 60 | $L_{order} = S_{max} + A + B + 218$ | $L_{tot} = L_{order} + 78$ |
| Double screw supports | 126 | 126 | $L_{order} = S_{max} + A + B + 218$ | $L_{tot} = L_{order} + 78$ |

Double Carriages

| Parameter | | M75 |
|--|------|----------------------|
| Minimum distance between carriages (Lc) | [mm] | 250 |
| Dynamic load (Fy), maximum | [N] | 2227 |
| Dynamic load (Fz), maximum | [N] | 2227 |
| Dynamic load torque (My), maximum | [Nm] | $L_c^1 \times 1,114$ |
| Dynamic load torque (Mz), maximum | [Nm] | $L_c^1 \times 1,114$ |
| Force required to move second carriage | [N] | 40 |
| Weight of unit with zero stroke of carriages | [kg] | 9,82 3,40 |



| Screw support configuration | A [mm] | B [mm] | Ordering length (L order) [mm] | Total length (L tot) [mm] |
|-----------------------------|--------|--------|---|----------------------------|
| No screw support | 5 | 5 | $L_{order} = S_{max} + A + B + L_c + 218$ | $L_{tot} = L_{order} + 78$ |
| Single screw support | 60 | 60 | $L_{order} = S_{max} + A + B + L_c + 218$ | $L_{tot} = L_{order} + 78$ |
| Double screw supports | 126 | 126 | $L_{order} = S_{max} + A + B + L_c + 218$ | $L_{tot} = L_{order} + 78$ |

¹ Value in mm

M100

Ball Screw Drive, Slide Guide

- » Ordering key - see page 199
- » Accessories - see page 127
- » Additional data - see page 184

General Specifications

| Parameter | M100 |
|---------------------------|---|
| Profile size (w × h) [mm] | 108 × 100 |
| Type of screw | ball screw with single nut |
| Carriage sealing system | self-adjusting steel cover band |
| Screw supports | number of screw supports to be specified by customer at order |
| Lubrication | lubrication of ball screw |
| Included accessories | none |

Performance Specifications

| Parameter | | M100 |
|---|---------------------|---------------------------------------|
| Stroke length (S max), maximum | [mm] | 6000 |
| Linear speed, maximum | [m/s] | 1,6 |
| Acceleration, maximum | [m/s ²] | 8 |
| Repeatability | [± mm] | 0,05 |
| Input speed, maximum ball nut units / composite nut units | [rpm] | 4000 / 1500 |
| Operation temperature limits | [°C] | -20 – 70 |
| Dynamic load (F _x), maximum ball nut units / composite nut units | [N] | 5000 / 2000 |
| Dynamic load (F _y), maximum | [N] | 3005 |
| Dynamic load (F _z), maximum | [N] | 3005 |
| Dynamic load torque (M _x), maximum | [Nm] | 117 |
| Dynamic load torque (M _y), maximum | [Nm] | 279 |
| Dynamic load torque (M _z), maximum | [Nm] | 279 |
| Drive shaft force (F _{rd}), maximum | [N] | 1000 |
| Drive shaft torque (M _{ta}), maximum | [Nm] | 45 |
| Screw diameter (d _o) | [mm] | 25 |
| Screw lead (p) ball nut units / composite nut units | [mm] | 5, 10, 25 / 10, 25 |
| Weight of unit with zero stroke of every 100 mm of stroke of carriage of option single screw support of option double screw supports | [kg] | 12,87 1,42 3,50 1,86 4,42 |

¹ Value for the complete unit

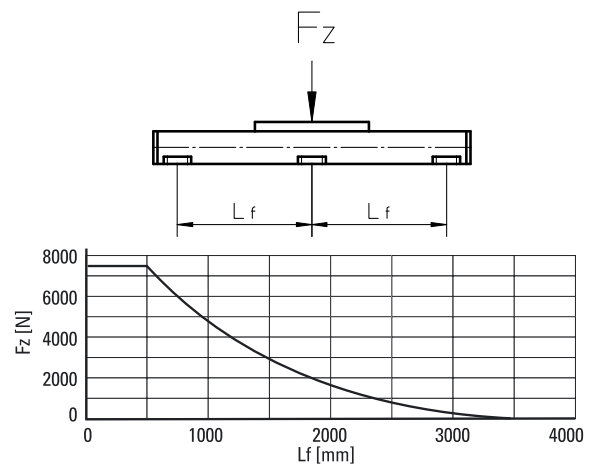
Carriage Idle Torque (M_{idle}) [Nm]

| Input speed [rpm] | Screw lead [mm] | | | | |
|---------------------------|-----------------|--------|---------------------|--------|---------------------|
| | p = 5 | p = 10 | p = 10 ¹ | p = 25 | p = 25 ¹ |
| 500 - no screw supports | 0,15 | 0,25 | 0,50 | 0,55 | 1,00 |
| 500 - with screw supports | 0,25 | 0,40 | 0,80 | 0,85 | 1,30 |

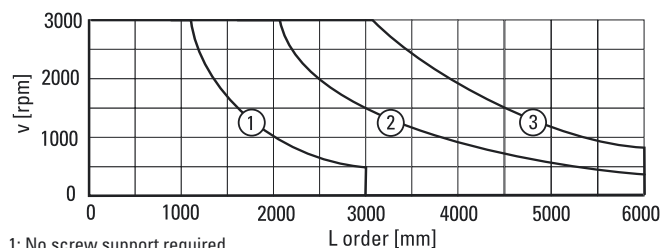
¹ Value for composite nut.

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

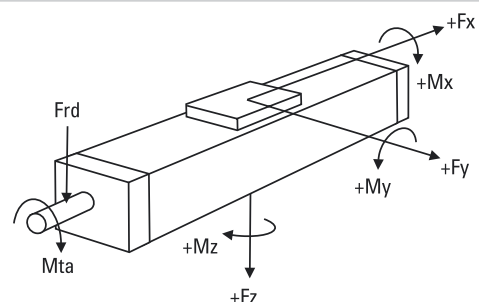


Critical Speed



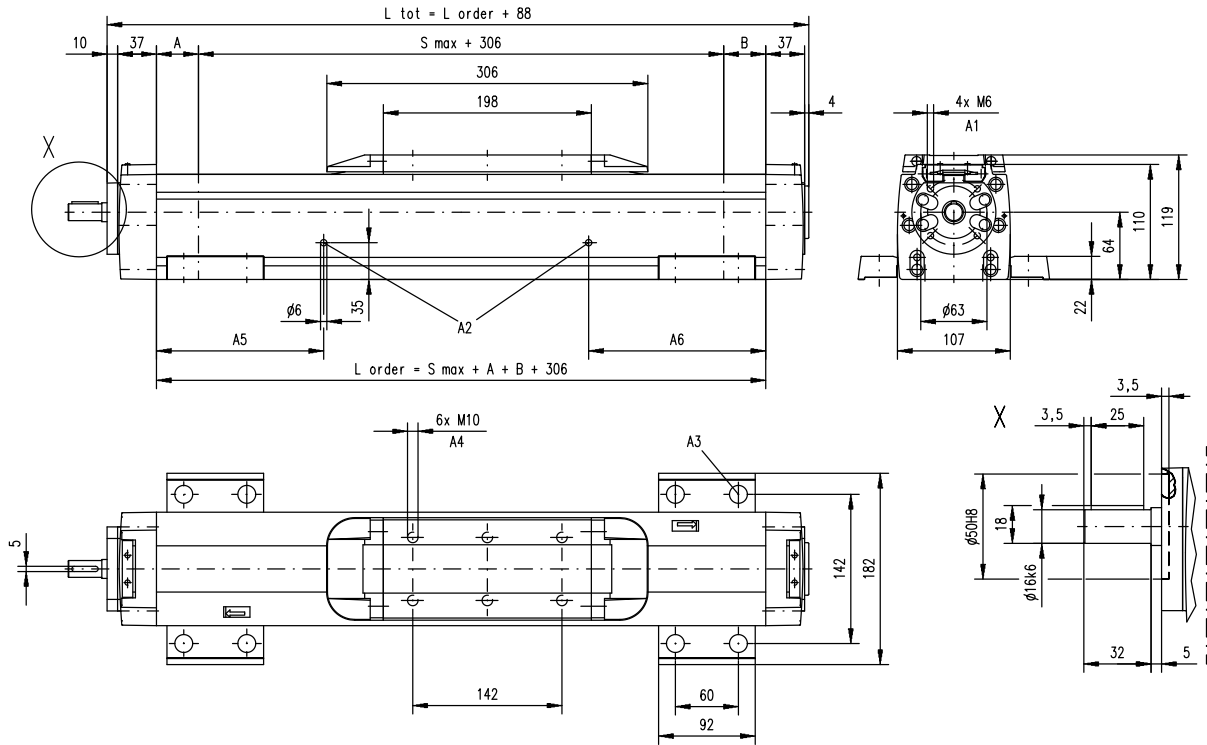
- 1: No screw support required
- 2: Single screw support required
- 3: Double screw supports required

Definition of Forces



M100

Ball Screw Drive, Slide Guide



A1: depth 9, Heli coil

A2: lubrication holes

A3: $\phi 17/\phi 10,5$ for socket head cap screw M10

A4: depth 10, Heli coil

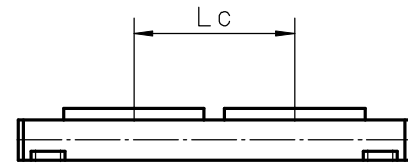
A5: 100 (L order \leq 1 m), 320 (L order $>$ 1 m)

A6: 100 (L order \leq 1 m), 430 (L order $>$ 1 m)

| Screw support configuration | A [mm] | B [mm] | Ordering length (L order) [mm] | Total length (L tot) [mm] |
|-----------------------------|--------|--------|-------------------------------------|----------------------------|
| No screw support | 1 | 1 | $L_{order} = S_{max} + A + B + 306$ | $L_{tot} = L_{order} + 88$ |
| Single screw support | 31 | 31 | $L_{order} = S_{max} + A + B + 306$ | $L_{tot} = L_{order} + 88$ |
| Double screw supports | 86 | 86 | $L_{order} = S_{max} + A + B + 306$ | $L_{tot} = L_{order} + 88$ |

Double Carriages

| Parameter | M100 |
|---|----------------------|
| Minimum distance between carriages (Lc) [mm] | 350 |
| Dynamic load (Fy), maximum [N] | 4508 |
| Dynamic load (Fz), maximum [N] | 4508 |
| Dynamic load torque (My), maximum [Nm] | $L_c^1 \times 2,254$ |
| Dynamic load torque (Mz), maximum [Nm] | $L_c^1 \times 2,254$ |
| Force required to move second carriage [N] | 45 |
| Weight of unit with zero stroke of carriages [kg] | 21,34 7,00 |



| Screw support configuration | A [mm] | B [mm] | Ordering length (L order) [mm] | Total length (L tot) [mm] |
|-----------------------------|--------|--------|---|----------------------------|
| No screw support | 1 | 1 | $L_{order} = S_{max} + A + B + L_c + 306$ | $L_{tot} = L_{order} + 88$ |
| Single screw support | 31 | 31 | $L_{order} = S_{max} + A + B + L_c + 306$ | $L_{tot} = L_{order} + 88$ |
| Double screw supports | 86 | 86 | $L_{order} = S_{max} + A + B + L_c + 306$ | $L_{tot} = L_{order} + 88$ |

¹ Value in mm

M75D

Ball Screw Drive, Slide Guide, Double Ball Nuts

- » Ordering key - see page 200
- » Accessories - see page 127
- » Additional data - see page 184

General Specifications

| Parameter | M75D |
|---------------------------|---|
| Profile size (w × h) [mm] | 86 × 75 |
| Type of screw | ball screw with double nut |
| Carriage sealing system | self-adjusting steel cover band |
| Screw supports | number of screw supports to be specified by customer at order |
| Lubrication | lubrication of ball screw |
| Included accessories | none |

Performance Specifications

| Parameter | | M75D |
|--|---------------------|-------------------|
| Stroke length (S max), maximum | [mm] | 3550 |
| Linear speed, maximum | [m/s] | 1,6 |
| Acceleration, maximum | [m/s ²] | 8 |
| Repeatability | [± mm] | 0,05 |
| Input speed, maximum | [rpm] | 5000 |
| Operation temperature limits | [°C] | -20 – 70 |
| Dynamic load (F _x), maximum | [N] | 2500 ¹ |
| Dynamic load (F _y), maximum | [N] | 1485 ¹ |
| Dynamic load (F _z), maximum | [N] | 1485 ¹ |
| Dynamic load torque (M _x), maximum | [Nm] | 49 ¹ |
| Dynamic load torque (M _y), maximum | [Nm] | 85 ¹ |
| Dynamic load torque (M _z), maximum | [Nm] | 85 ¹ |
| Drive shaft force (F _{rd}), maximum | [N] | 600 |
| Drive shaft torque (M _{ta}), maximum | [Nm] | 30 |
| Screw diameter (d _o) | [mm] | 20 |
| Screw lead (p) | [mm] | 5, 20 |
| Weight | [kg] | |
| of unit with zero stroke | | 6,57 |
| of every 100 mm of stroke | | 0,82 |
| of carriage | | 1,70 |
| of option single screw support | | 1,70 |
| of option double screw supports | | 3,58 |

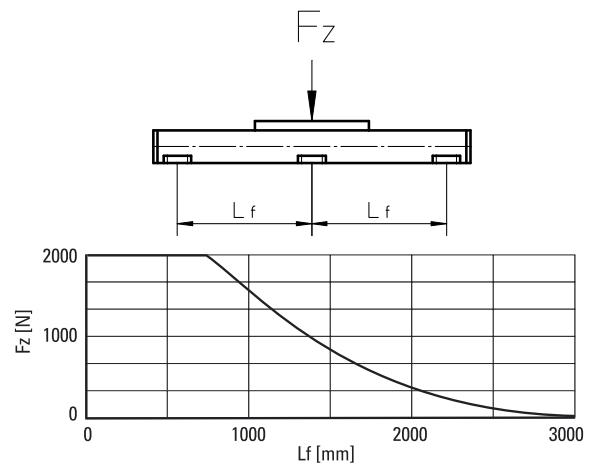
¹ Value for the complete unit

Carriage Idle Torque (M_{idle}) [Nm]

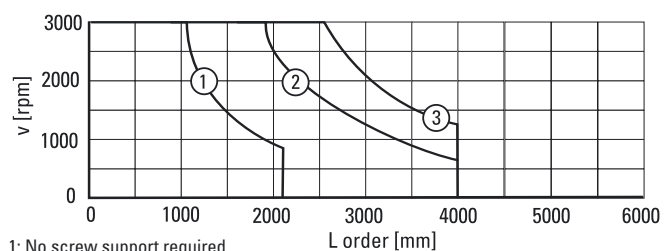
| Input speed [rpm] | Screw lead [mm] | |
|---------------------------|-----------------|--------|
| | p = 5 | p = 20 |
| 500 - no screw supports | 0,15 | 0,5 |
| 500 - with screw supports | 0,2 | 0,8 |

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

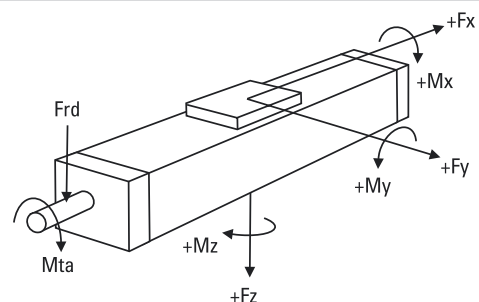


Critical Speed



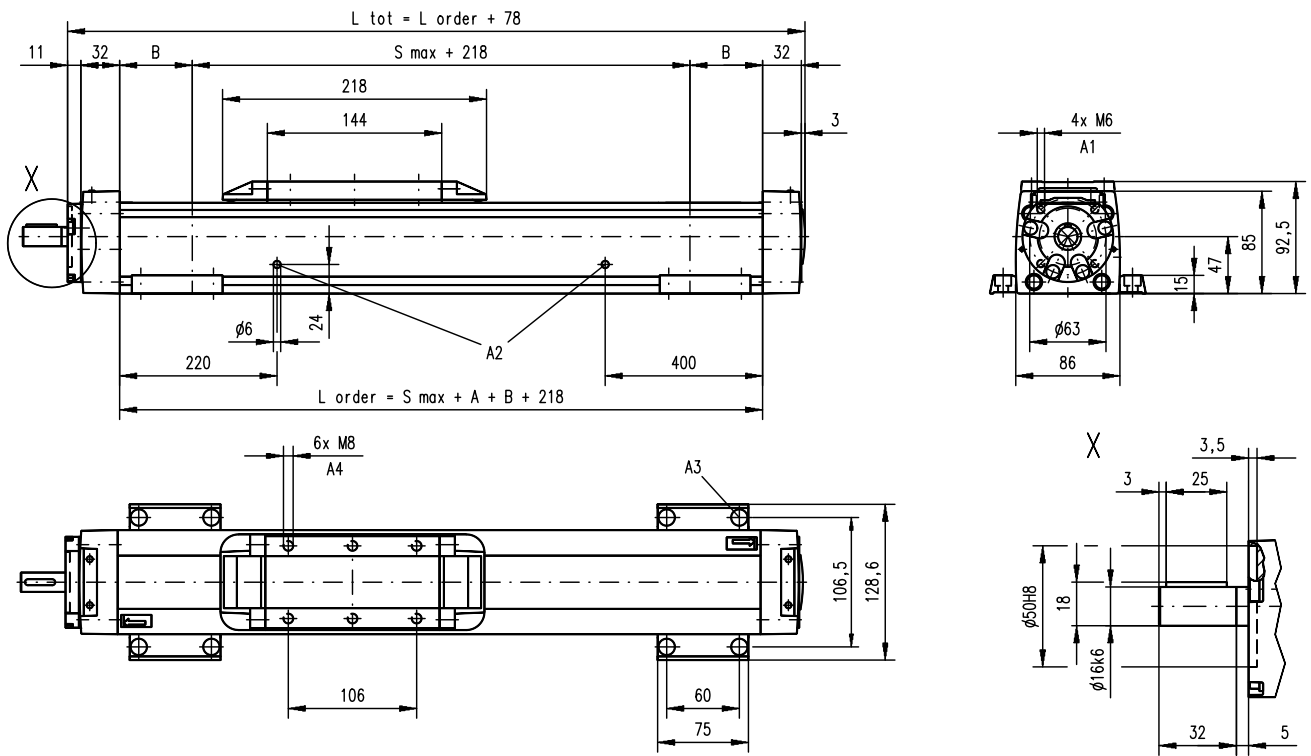
- 1: No screw support required
- 2: Single screw support required
- 3: Double screw supports required

Definition of Forces



M75D

Ball Screw Drive, Slide Guide, Double Ball Nuts



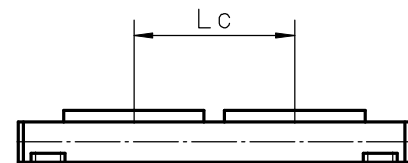
A1: depth 9, Heli coil
A2: lubrication holes

A3: ø13,5/ø8,5 for socket head cap screw M8
A4: depth 8, Heli coil

| Screw support configuration | A [mm] | B [mm] | Ordering length (L order) [mm] | Total length (L tot) [mm] |
|-----------------------------|--------|--------|-------------------------------------|----------------------------|
| No screw support | 5 | 76 | $L_{order} = S_{max} + A + B + 218$ | $L_{tot} = L_{order} + 78$ |
| Single screw support | 60 | 151 | $L_{order} = S_{max} + A + B + 218$ | $L_{tot} = L_{order} + 78$ |
| Double screw supports | 126 | 216 | $L_{order} = S_{max} + A + B + 218$ | $L_{tot} = L_{order} + 78$ |

Double Carriages

| Parameter | | M75D |
|--|------|----------------------|
| Minimum distance between carriages (Lc) | [mm] | 250 |
| Dynamic load (Fy), maximum | [N] | 2227 |
| Dynamic load (Fz), maximum | [N] | 2227 |
| Dynamic load torque (My), maximum | [Nm] | $L_c^1 \times 1,114$ |
| Dynamic load torque (Mz), maximum | [Nm] | $L_c^1 \times 1,114$ |
| Force required to move second carriage | [N] | 40 |
| Weight of unit with zero stroke of carriages | [kg] | 6,92 3,4 |



| Screw support configuration | A [mm] | B [mm] | Ordering length (L order) [mm] | Total length (L tot) [mm] |
|-----------------------------|--------|--------|---|----------------------------|
| No screw support | 5 | 76 | $L_{order} = S_{max} + A + B + L_c + 218$ | $L_{tot} = L_{order} + 78$ |
| Single screw support | 60 | 151 | $L_{order} = S_{max} + A + B + L_c + 218$ | $L_{tot} = L_{order} + 78$ |
| Double screw supports | 126 | 216 | $L_{order} = S_{max} + A + B + L_c + 218$ | $L_{tot} = L_{order} + 78$ |

¹ Value in mm

M100D

Ball Screw Drive, Slide Guide, Double Ball Nuts

- » Ordering key - see page 200
- » Accessories - see page 127
- » Additional data - see page 184

General Specifications

| Parameter | M100D |
|---------------------------|---|
| Profile size (w × h) [mm] | 108 × 100 |
| Type of screw | ball screw with double nut |
| Carriage sealing system | self-adjusting steel cover band |
| Screw supports | number of screw supports to be specified by customer at order |
| Lubrication | lubrication of ball screw |
| Included accessories | none |

Performance Specifications

| Parameter | | M100D |
|--|---------------------|-------------------|
| Stroke length (S max), maximum | [mm] | 6000 |
| Linear speed, maximum | [m/s] | 1,6 |
| Acceleration, maximum | [m/s ²] | 8 |
| Repeatability | [± mm] | 0,05 |
| Input speed, maximum | [rpm] | 4000 |
| Operation temperature limits | [°C] | -20 – 70 |
| Dynamic load (F _x), maximum | [N] | 5000 |
| Dynamic load (F _y), maximum | [N] | 3005 ¹ |
| Dynamic load (F _z), maximum | [N] | 3005 ¹ |
| Dynamic load torque (M _x), maximum | [Nm] | 117 ¹ |
| Dynamic load torque (M _y), maximum | [Nm] | 279 ¹ |
| Dynamic load torque (M _z), maximum | [Nm] | 279 ¹ |
| Drive shaft force (F _{rd}), maximum | [N] | 100 |
| Drive shaft torque (M _{ta}), maximum | [Nm] | 45 |
| Screw diameter (d _o) | [mm] | 25 |
| Screw lead (p) | [mm] | 5, 10, 25 |
| Weight | [kg] | |
| of unit with zero stroke | | 13,87 |
| of every 100 mm of stroke | | 1,42 |
| of carriage | | 3,50 |
| of option single screw support | | 1,86 |
| of option double screw supports | | 4,42 |

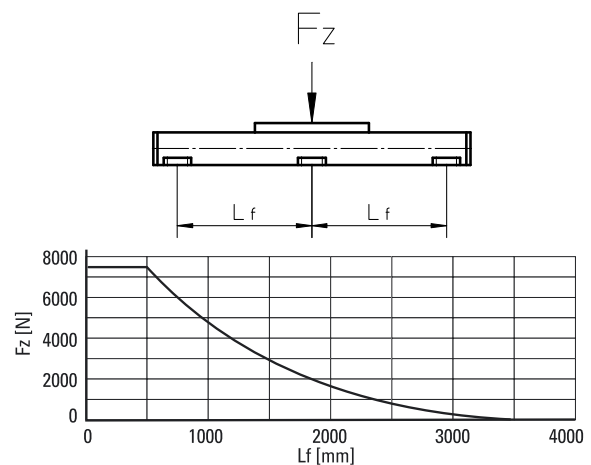
¹ Value for the complete unit

Carriage Idle Torque (M_{idle}) [Nm]

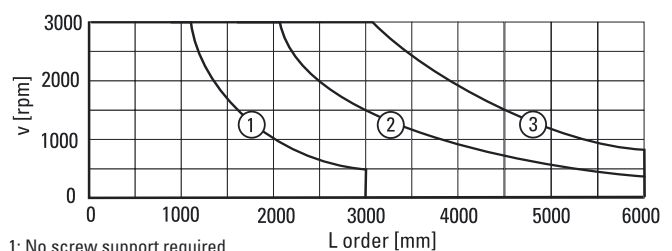
| Input speed [rpm] | Screw lead [mm] | | |
|---------------------------|-----------------|--------|--------|
| | p = 5 | p = 10 | p = 25 |
| 500 - no screw supports | 0,2 | 0,4 | 0,8 |
| 500 - with screw supports | 0,4 | 0,6 | 1,3 |

M_{idle} = the input torque needed to move the carriage with no load on it.

Deflection of the Profile

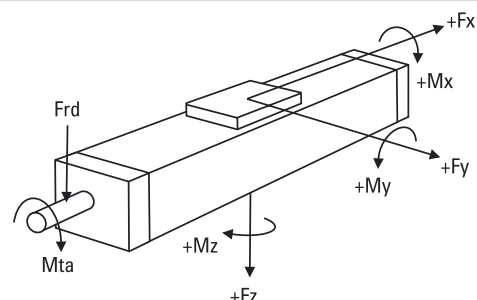


Critical Speed



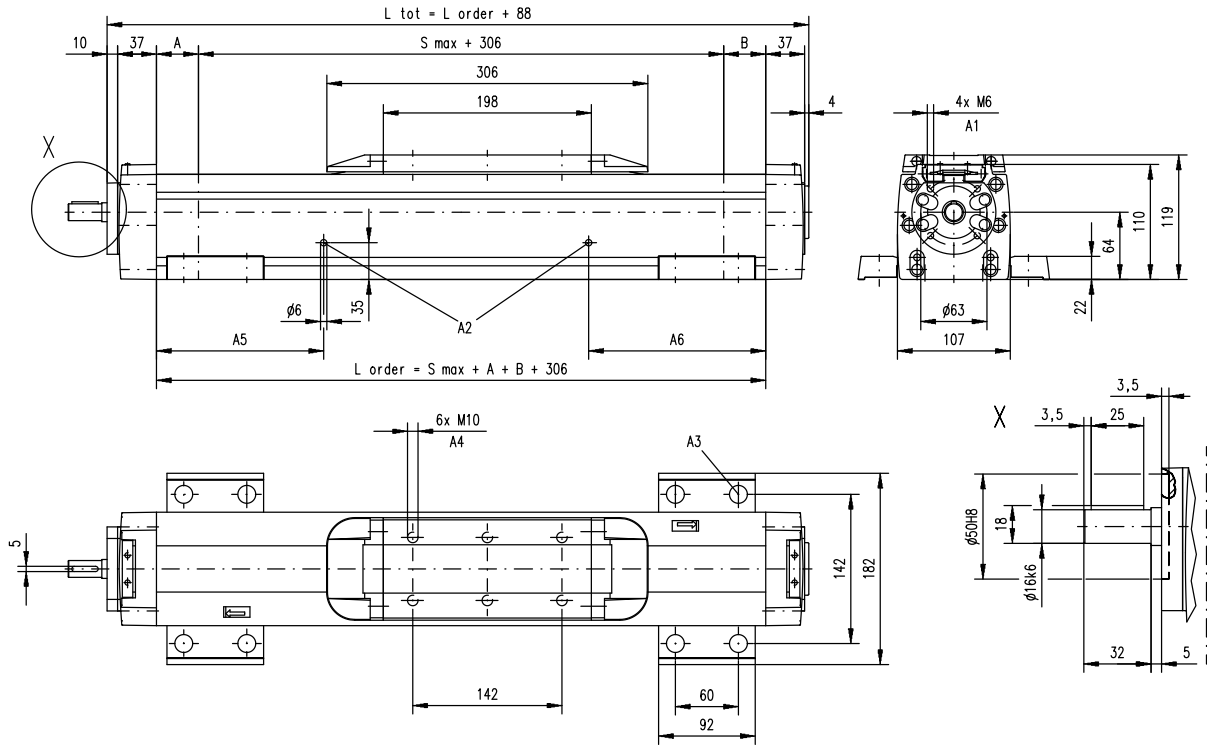
- 1: No screw support required
- 2: Single screw support required
- 3: Double screw supports required

Definition of Forces



M100D

Ball Screw Drive, Slide Guide, Double Ball Nuts



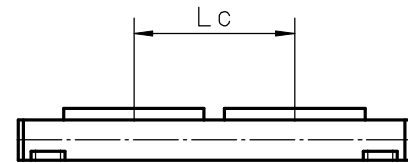
A1: depth 9, Heli coil
 A2: lubrication holes
 A3: $\phi 17/\phi 10,5$ for socket head cap screw M10

A4: depth 10, Heli coil
 A5: 100 (L_order <= 1 m), 320 (L_order > 1 m)
 A6: 100 (L_order <= 1 m), 430 (L_order > 1 m)

| Screw support configuration | A [mm] | B [mm] | Ordering length (L_order) [mm] | Total length (L_tot) [mm] |
|-----------------------------|--------|--------|-------------------------------------|----------------------------|
| No screw support | 1 | 59 | $L_{order} = S_{max} + A + B + 306$ | $L_{tot} = L_{order} + 88$ |
| Single screw support | 31 | 117 | $L_{order} = S_{max} + A + B + 306$ | $L_{tot} = L_{order} + 88$ |
| Double screw supports | 86 | 172 | $L_{order} = S_{max} + A + B + 306$ | $L_{tot} = L_{order} + 88$ |

Double Carriages

| Parameter | M100D |
|---|----------------------|
| Minimum distance between carriages (Lc) [mm] | 350 |
| Dynamic load (Fy), maximum [N] | 4508 |
| Dynamic load (Fz), maximum [N] | 4508 |
| Dynamic load torque (My), maximum [Nm] | $L_c^1 \times 2,254$ |
| Dynamic load torque (Mz), maximum [Nm] | $L_c^1 \times 2,254$ |
| Force required to move second carriage [N] | 45 |
| Weight of unit with zero stroke of carriages [kg] | 15,43 |
| | 7,00 |



| Screw support configuration | A [mm] | B [mm] | Ordering length (L_order) [mm] | Total length (L_tot) [mm] |
|-----------------------------|--------|--------|---|----------------------------|
| No screw support | 1 | 59 | $L_{order} = S_{max} + A + B + L_c + 306$ | $L_{tot} = L_{order} + 88$ |
| Single screw support | 31 | 117 | $L_{order} = S_{max} + A + B + L_c + 306$ | $L_{tot} = L_{order} + 88$ |
| Double screw supports | 86 | 172 | $L_{order} = S_{max} + A + B + L_c + 306$ | $L_{tot} = L_{order} + 88$ |

¹ Value in mm