BRAUER®

MAGNA FORCE
HEAVY DUTY CAM CLAMPS

- A fraction of the cost of hydraulic system clamping
- Clamping forces from 300 daN to 5000 daN
- Rugged build quality, ideal for machine shops
- Significant cost benefits over clamps in repetitive machining
- Unique, patented range of manually operated cam clamps with advantages over hydraulic automated clamping systems

TECHNICAL INFORMATION

MAGNA FORCE CAM RAM CLAMPS

- All components are case hardened for toughness.
- Two stage cam gives 'daylight' for loading and unloading with fast plunger travel, and slow, high-force travel for clamping.
- The clamping sequence is as follows:
  - From the parked position the initial 20 degrees of rotation of the handle expands the clamp through its 'daylight' travel
  - A further 80 degrees of rotation expands the clamp through its 'clamping' travel.
- Indicator marks on the handle and base show the maximum allowable rotation for safe clamping, their alignment leaving 10 degrees overlap between the two mating cams. If the marks reach alignment the clamp should be adjusted to reduce the rotational travel between the handle and the base.
- The clamps feature a threaded bore which allows attachment of a set screw and locknut for pushing (compression) or a tie-rod for pulling.
- The plunger is keyed to the base to prevent its rotation to allow tightening of locknuts or, alignment of attached tools or fixtures:
- The clamps are available in both clockwise and counter-clockwise rotation variants.
- Both sizes of cam ram may be finally closed by a blow from a soft faced mallet if high clamping forces are required.
- Due to the shallow angle of the 'clamping' travel cam, there is no tendency for the clamp to unlock even under vibration.
- No positive stops on rotational movement are provided to give the following benefits:

  If stops were provided the operator would not know if rotational movement of the handle had stopped because of proper clamping of the work piece or because a stop had been reached. He could believe the workpiece was firmly held when, in fact, the stop had been reached and the workpiece was not firmly held. Allowing over-stroking gives audible and visual warning that the work is not held.
- If the clamp is inadvertently over-stroked (the cams jump over their high points on to the next cam). The clamp can be reset by lifting the handle against its return spring and resetting its rotational position.

MAGNA FORCE CAM SWING CLAMPS

- All components are case hardened for toughness.
- The **clamp setting sequence** (see page 4) is as follows
  - From the parked position (fig. 1) the initial 80 degrees of rotation of the handle and arm together bring the arm over the workpiece(fig. 2).
  - The next 8 degrees of rotation moves the clamping arm vertically through fast 'daylight' travel (fig. 3).
  - To set for correct clamping position move handle a further 10 degrees (approx) and adjust spindle to make contact with workpiece (fig. 3a).
  - The final rotation to a maximum of 100 degrees moves the clamping arm through slow 'clamping' travel (fig. 4).
- Indicator marks on the handle and arm show the maximum rotational travel allowable for safe clamping, their alignment leaving 10 degrees overlap between the two mating cams (fig. 4a). If the marks reach alignment the spindle needs to be reset to reduce the rotational travel between handle and arm (fig. 5a).
- As with Cam Push Clamps, the two larger sizes 411/00 and 412/00 may be finally closed by a blow from a soft faced mallet if high clamping forces are required.
- Due to the shallow angle of the 'clamping' travel cam there is no tendency for the clamp to unlock, even under vibration.
- No positive stops on rotational movement are provided to give the following benefits:

  If stops were provided the operator would not know if rotational movement of the handle had stopped because of proper clamping of the workpiece or because a stop had been reached – he could believe the workpiece was firmly held when, in fact, the stop had been reached and the workpiece was not firmly held. Allowing over-stroking gives audible and visual warning that the work is not held.
- If the clamp is inadvertently over-stroked (the cams jump over their high points onto the next cam) (fig. 5), the clamp can be reset by pushing the arm down against its return spring and resetting the rotational position of the handle (figs. 6+7).
- The clamps are available in both clockwise and counter-clockwise rotation variants.

MAGNA FORCE CAM PUSH CLAMPS

- All components are case hardened for toughness.
- Two stage cam gives 'daylight' for loading and unloading with fast plunger travel, and slow, high-force travel for clamping.
- The end of the fast travel/start of the clamping travel is clearly identifiable being when the handle is straight along the axis of the clamp.
- The load path being along the centre line of the clamp there is no tendency for the clamp to unlock, even under vibration.
- The plunger has a slot which engages the sides of the cam, to prevent its rotation to allow, tightening of locknut or, alignment of attached tools or fixtures.
- The larger two sizes of the short handled versions 401/00 and 402/00 may be finally closed by a blow from a soft faced mallet if high clamping forces are required.
- The long handled versions allow high clamping forces and easy release by hand, the handle being removable after clamping if it is in the way.
- The clamps have threaded bodies for hole mounting, and mounting brackets are supplied as standard.

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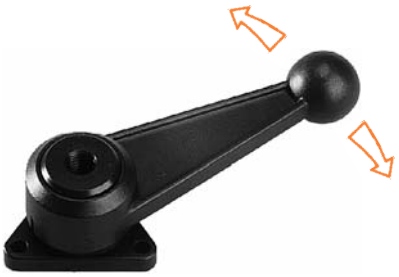
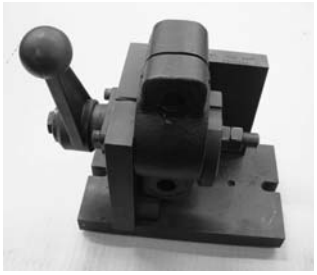
MAGNA FORCE HEAVY-DUTY CAM CLAMPS

CAM RAM CLAMPS

MODELS **CR4000** **(CLOCKWISE)**

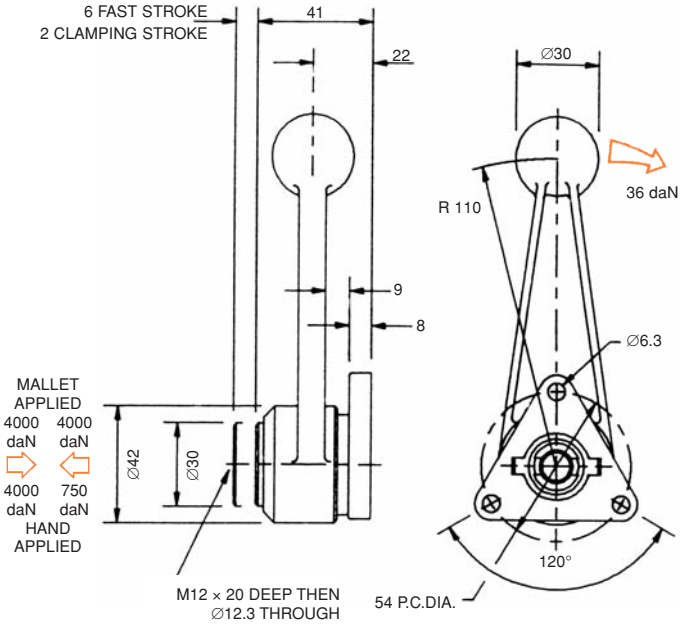
CR4000A **(ANTI-CLOCKWISE)**





Operating clamping force:
750 daN (hand applied),
4000 daN (mallet applied)

Weight:
0.55 Kg



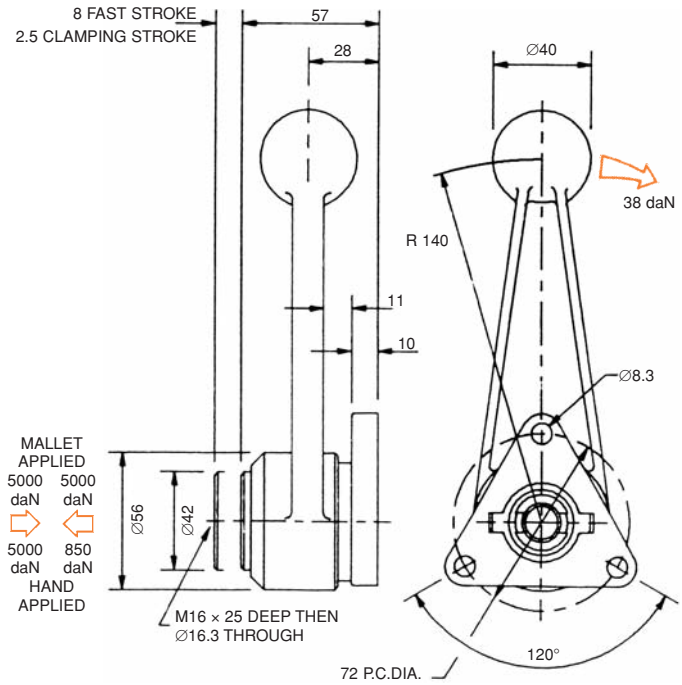
CAM RAM CLAMPS

MODELS **CR5000** **(CLOCKWISE)**

CR5000A **(ANTI-CLOCKWISE)**

Operating clamping force:
850 daN (hand applied),
5000 daN (mallet applied)

Weight:
1.3 Kg



TECHNICAL INFORMATION

Clamp No.	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
CR4000	36 daN	750 daN	4000 daN	6.0mm	2.0mm
CR4000A	36 daN	750 daN	4000 daN	6.0mm	2.0mm
CR5000	38 daN	850 daN	5000 daN	8.0mm	2.5mm
CR5000A	38 daN	850 daN	5000 daN	8.0mm	2.5mm

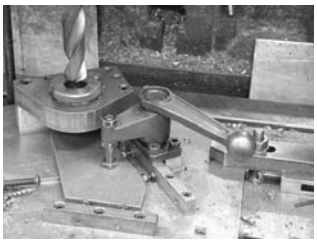
MAGNA FORCE HEAVY-DUTY CAM CLAMPS

CAM SWING CLAMPS

MODELS **CS300** **(CLOCKWISE)**

CS300A **(ANTI-CLOCKWISE)**

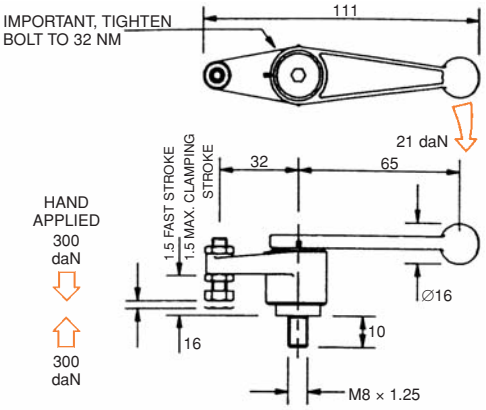
For Cam Swing Height Block Assemblies see page 123



Operating clamping force:
300 daN (hand applied).

Weight:
0.20 Kg

Supplied complete with:
MB0625 Set screw & nuts.



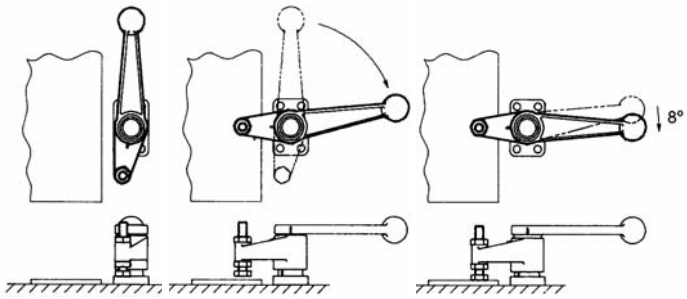


Fig. 1 Fig. 2 Fig. 3

CAM SWING CLAMPS

MODELS **CS800** **(CLOCKWISE)**

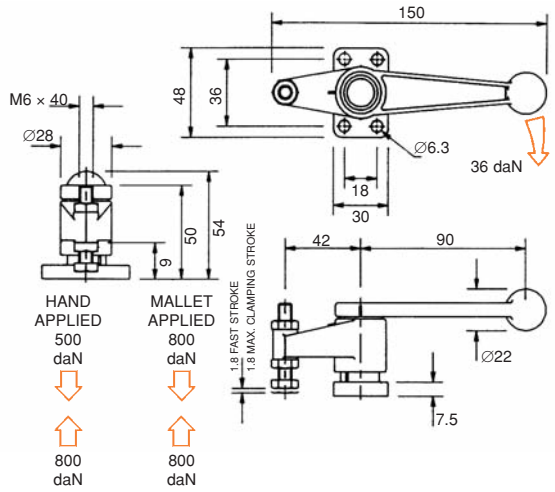
CS800A **(ANTI-CLOCKWISE)**

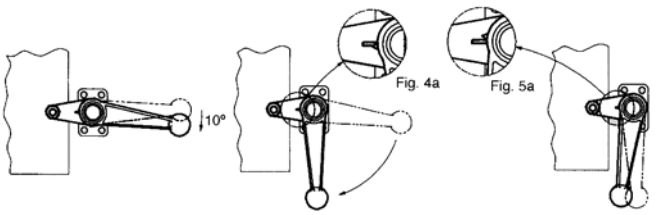
For Cam Swing Height Block Assemblies see page 123

Operating clamping force:
500 daN (hand applied),
800 daN (mallet applied).

Weight:
0.40 Kg

Supplied complete with:
MB0840 Set screw & nuts.





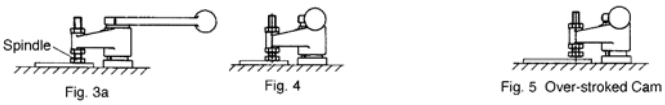


Fig. 3a Fig. 4 Fig. 5 Over-stroked Cam

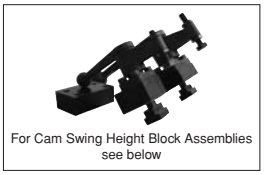
TECHNICAL INFORMATION

Clamp No.	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
CS300	21 daN	300 daN	N/A	1.5mm	1.5mm
CS300A	21 daN	300 daN	N/A	1.5mm	1.5mm
CS800	36 daN	500 daN	800 daN	1.8mm	1.8mm
CS800A	36 daN	500 daN	800 daN	1.8mm	1.8mm

MAGNA FORCE HEAVY-DUTY CAM CLAMPS

CAM SWING CLAMPS

MODELS **CS1200** (CLOCKWISE)
CS1200A (ANTI-CLOCKWISE)

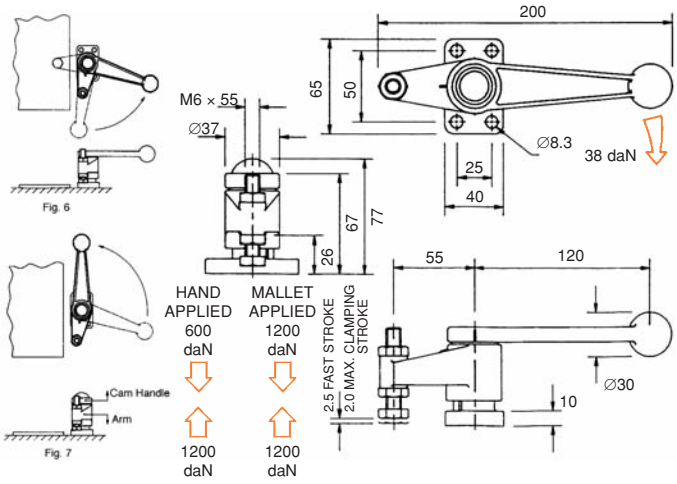


For Cam Swing Height Block Assemblies see below

Operating clamping force:
600 daN (hand applied),
1200 daN (mallet applied).

Weight:
0.90 Kg

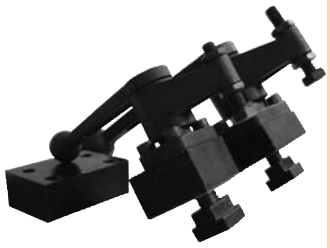
Supplied complete with:
MB1055 Set screw & nuts.



TECHNICAL INFORMATION

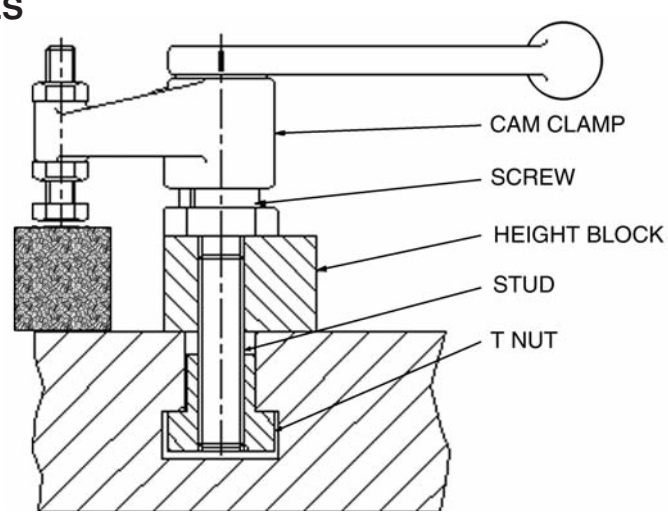
Clamp No.	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
CS1200	38 daN	600 daN	1200 daN	2.5mm	2.0mm
CS1200A	38 daN	600 daN	1200 daN	2.5mm	2.0mm

CAM SWING HEIGHT BLOCK ASSEMBLIES



The height block assembly provides the user with a convenient method of setting the height of the Cam Swing Clamp when in operation. The act of locking the clamp onto the work piece also locks the block into position along the Tee Slot.

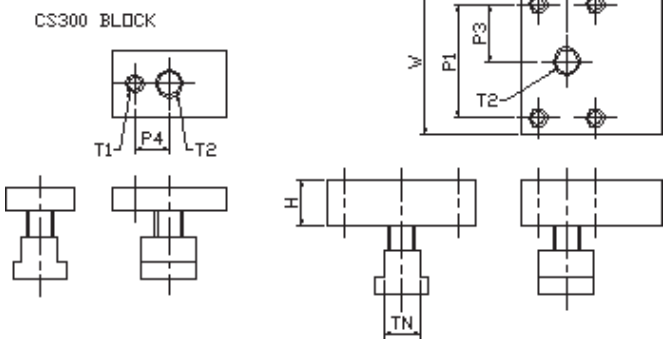
Note:
Clamp ordered separately



Example Part Code:

CSB1200-20-TN12

- 'T' slot width (standard options are 12, 14, 16, 18 for all blocks)
- Block height (see table for standard heights)
- To suit clamp (CS & CSA 300, 800, 1200)
- Cam Swing Block



To Suit Clamp	H	W	L	TN	P1	P2	P3	P4	T1	T2	Screw ×4
CS300	10, 20, 30, 40, 50	30	50	12, 14, 16, 18	N/A	N/A	N/A	15	M8×1.25	M12×1.25	N/A
CS800	12, 25, 40, 50	48	40	12, 14, 16, 18	36	18	18	9	M6×1.0	M12×1.25	M6×18
CS1200	20, 40, 60, 76	65	62	12, 14, 16, 18	50	25	25	12.5	M8×1.25	M12×1.25	M8×25

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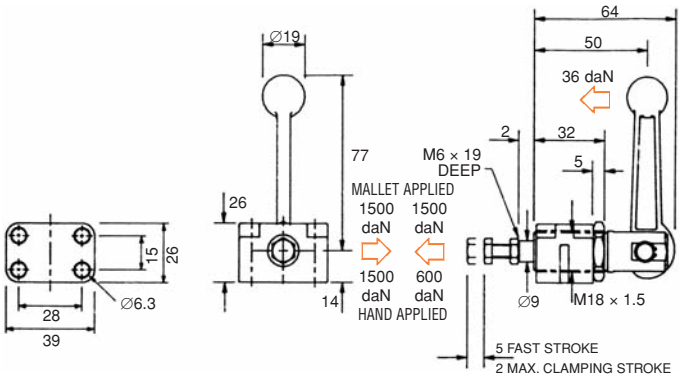
MAGNA FORCE HEAVY-DUTY CAM CLAMPS

CAM PUSH CLAMPS
MODELS **CP1500**

Operating clamping force:
1500 daN (mallet applied),
600 daN (hand applied).

Weight:
0.27 Kg

Supplied complete with:
MB0625 Set screw & nuts.
CMB18 Mounting base and locknuts.

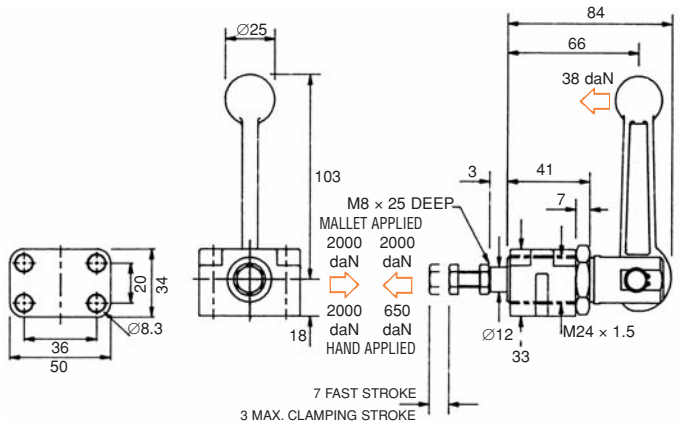


CAM PUSH CLAMPS
MODELS **CP2000**

Operating clamping force:
2000 daN (mallet applied),
650 daN (hand applied).

Weight:
0.60 Kg

Supplied complete with:
MB0840 Set screw & nuts.
CMB24 Mounting base & locknuts.



TECHNICAL INFORMATION

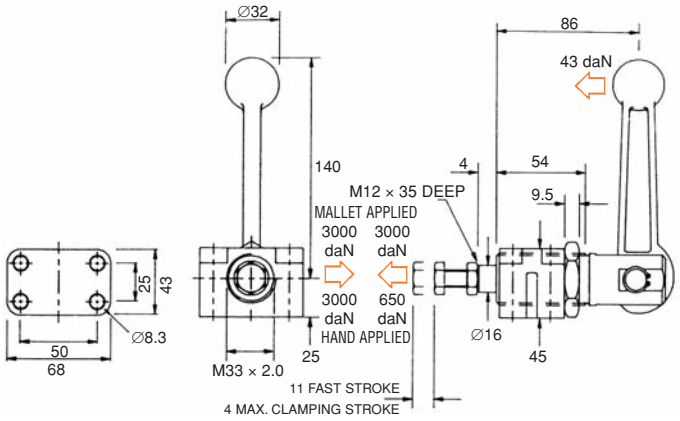
Clamp No.	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
CP1500	36 daN	600 daN	1500 daN	5.2mm	2.2mm
CP2000	38 daN	650 daN	2000 daN	7.0mm	3.0mm
CP3000	43 daN	650 daN	3000 daN	11.0mm	4.0mm

CAM PUSH CLAMPS
MODELS **CP3000**

Operating clamping force:
3000 daN (mallet applied),
650 daN (hand applied).

Weight:
1.50 Kg

Supplied complete with:
MB0840 Set screw & nuts.
CMB33 Mounting base & locknuts.



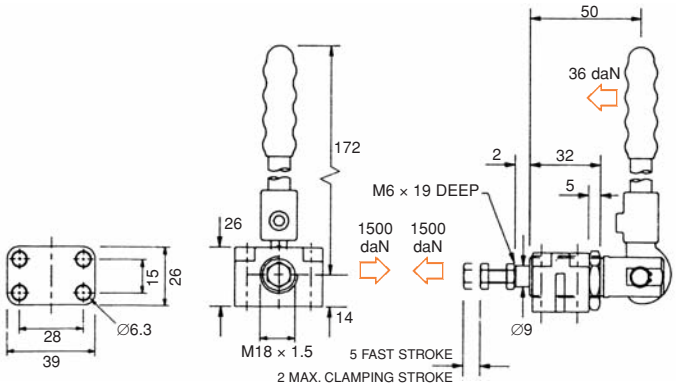
CLAMPING PRODUCTS

BRAUER®

MAGNA FORCE HEAVY-DUTY CAM CLAMPS

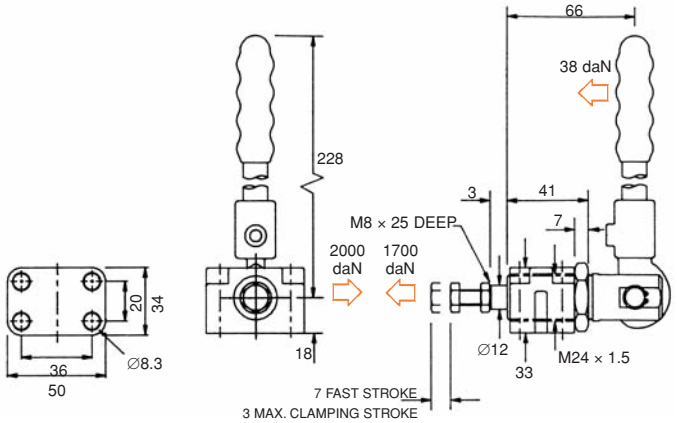
CAM PUSH CLAMPS
MODELS **CP1500L**

Operating clamping force:
1500 daN
Weight:
0.35 Kg
Supplied complete with:
MB0625 Set screw & nuts.
CMB18 Mounting base & locknuts.



CAM PUSH CLAMPS
MODELS **CP2000L**

Operating clamping force:
1700 daN
Weight:
0.75 Kg
Supplied complete with:
MB0840 Set screw & nuts.
CMB24 Mounting base & locknuts.
Nominal holding force:
2000 daN

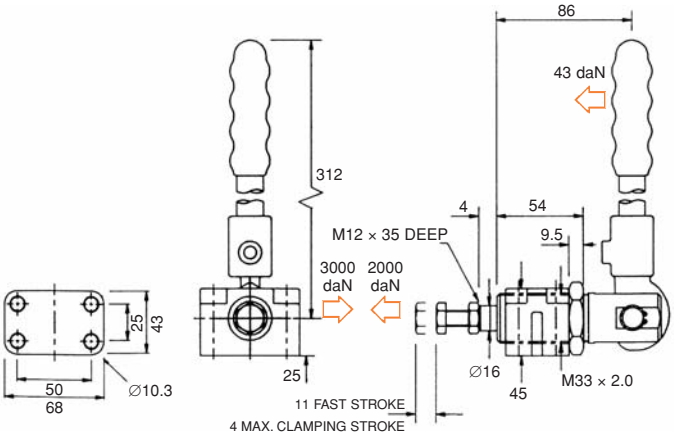


TECHNICAL INFORMATION

Clamp No.	Applied Handle Force (Hand Push)	Clamping Force	Clamping Force using Mallet Blows	Daylight Travel	Clamping Travel
CP1500L	36 daN	1500 daN	N/A	5.2mm	2.2mm
CP2000L	38 daN	1700 daN	N/A	7.0mm	3.0mm
CP3000L	43 daN	2000 daN	N/A	11.0mm	4.0mm

CAM PUSH CLAMPS
MODELS **CP3000L**

Operating clamping force:
2000 daN
Weight:
2.00 Kg
Supplied complete with:
MB1250 Set screw & nuts.
CMB33 Mounting base & locknuts.
Nominal holding force:
3000 daN



CLAMPING PRODUCTS