■Standard and optional accessories

Model		TPL-45FX		TPL-60FX		TPL-80FX		TPL-110FX		TPL-150FX		TPL-200FX	
Menu		Progressive	Drawing	Progressive	Drawing	Progressive	Drawing	Progressive	Drawing	Progressive	Drawing	Progressive	Drawing
Variable-speed drive	Inverter (with forward/reverse selector switch)	○		○		○		○		○		○	
Lubrication system	Automatic grease lubrication	—	○	—	○	—	○	○		○		○	
	Automatic oil circulation + Automatic grease	○	—	○	—	○	—	—		—		—	
Knockout	Mechanical	▲		▲		▲		▲		▲		▲	
Foundation parts	Anchor bolts, shims, leveling plates	▲		▲		▲		▲		▲		▲	
Vibration isolation system	Rubber isolators	▲		▲		▲		▲		▲		▲	
Slide cap	Without push bolt	○		○		○		▲		▲		▲	
Touch screen	5.7 inches	○		○		○		—		—		—	
	8.4 inches	▲		▲		▲		○		○		○	
Die information	20 dies	○		○		○		○		○		○	
	200 dies	▲		▲		▲		▲		▲		▲	
Total counter	6 digits (x 2)	○		○		○		○		○		○	
Preset counter	6 digits (x 2)	○		○		○		○		○		○	
Eco-counter		○		○		○		○		○		○	
Ethernet		○		○		○		○		○		○	
APINES		▲		▲		▲		▲		▲		▲	
Air ejector	Solenoid type (1 circuit)	○		○		○		○		○		○	
Slide adjuster	Motorized	○		○		○		○		○		○	
Die height counter	Digital display in 0.01 mm increments	○		○		○		○		○		○	
Overload protector (OLP)	Hydraulic	○		○		○		○		○		○	
Control system	Two-hand control	○		○		○		○		○		○	
Control panel	Stationary	○		○		○		○		○		○	
	Portable stand	▲		▲		▲		▲		▲		▲	
Electronic rotary cam	4 spare channels	○		○		○		○		○		○	
Die cushion		—	▲	—	▲	—	▲	—	▲	—	▲	—	▲
Light curtain		○		○		○		○		○		○	

○: Standard ▲: Option —: Not available

■Die cushion specifications

Model		TPL-45FX		TPL-60FX		TPL-80FX		TPL-110FX		TPL-150FX		TPL-200FX	
Menu		Progressive	Drawing	Progressive	Drawing	Progressive	Drawing	Progressive	Drawing	Progressive	Drawing	Progressive	Drawing
Without pneumatic chute (bellows type)	Capacity kN	—	23	—	35	—	63	—	75	—	95	—	140
	Stroke length mm	—	70	—	80	—	80	—	80	—	80	—	100
	Pad dimensions LR×FB mm	—	260×235	—	370×265	—	480×300	—	450×305	—	510×345	—	640×445
Hydropneumatic	Capacity kN	—	—	—	—	—	—	—	260	—	440	—	440
	Stroke length mm	—	—	—	—	—	—	—	100	—	120	—	160
	Pad dimensions LR×FB mm	—	—	—	—	—	—	—	500×340	—	560×410	—	560×410

For your safe use,
be sure to read the manual carefully before use.

- Use of this product requires safeguard measures to suit your work.
- These machines correspond to the press machines specified in the Ordinance on Industrial Safety and Health.
  This means that you must contact the authorities for applying for their installation, for example.
- Options are included in photos.

*Specifications, appearance, and equipment are subject to change without notice by reason of improvement.
*The official model names of machines described in this catalog are TPL45FX, TPL60FX, TPL80FX, TPL110FX, TPL150FX, and TPL200FX.
Use these registered model names when you contact the authorities for applying for installation, exporting, or financing.
The hyphened spellings TPL45-FX, TPL60-FX, TPL80-FX, TPL110-FX, TPL150-FX, and TPL200-FX are used in some portions of this catalog for sake of readability.
*The specifications described in this catalog are for the Japanese domestic market.

AMADA CO., LTD.
www.amada.com

Inquiry

E057-HQ01en
Oct.2014

SOLUTION

VPSS
Virtual Prototype Simulation System

TPL FX SERIES

Single link presses

TPL-45FX / 60FX / 80FX / 110FX / 150FX / 200FX

Press

The Engineering AMADA

Performance-proven
link motion presses to
accomplish high productivity and accuracy

Since their release in 1990, the Amada TPL series presses have led many pressworking operations. In addition to the link motion that has met the pressworking needs of customers for high productivity and accuracy, the TPL-FX series has made it possible to visualize press operating conditions and maintenance information for digital network applications. The eco-counter and eco-idling functions have helped to save on energy and improve energy efficiency.

TPL-80FX TPL-150FX

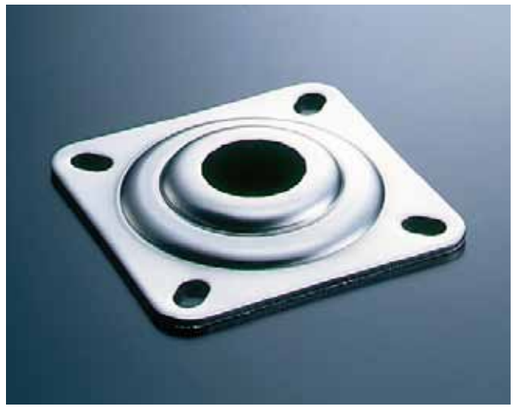
Single link presses

TPL FX SERIES

*Options are included in photos.

Processing examples with sample workpieces

Material: SUS304
Thickness: 1.4mm



Material: SPCD
Thickness: 1.2mm

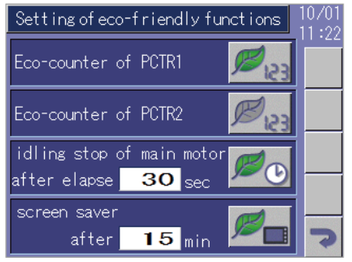
Eco-functions reduce power consumption

Advanced eco-functions are installed to achieve lower power consumption as compared with conventional machines.

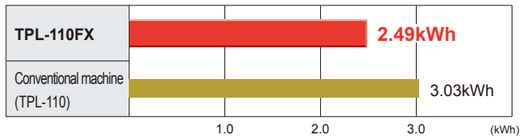
Eco-counter function
When the production count reaches the preset count, the motor automatically enters the idle condition and draws less power.

Eco-idling function
When its standby time reaches the preset time, the motor automatically enters the idle condition and consumes less power.

Touch screen blackout function
When the touch screen is not operated for the preset time, it blacks out to reduce power consumption.



Power consumption comparison
17.8% reduction



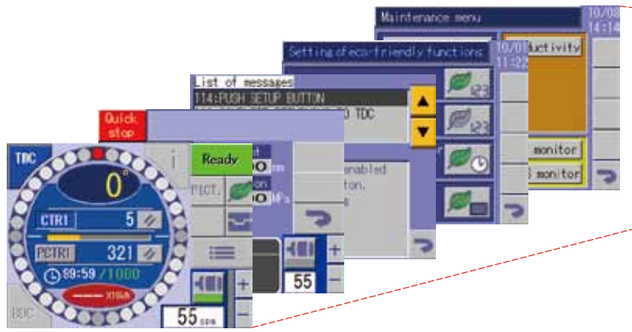
*Power consumption calculation conditions
-Production stroke count: Maximum stroke count x 0.7
-Load operation: 30 min
-Standby (setup): 10 min

TPL-FX series Technologies and functions

1 Operability improvement and machine data management (Functionality)

Pendant control panel

A TFT color touch screen is fitted as standard and provides better visibility and operability.

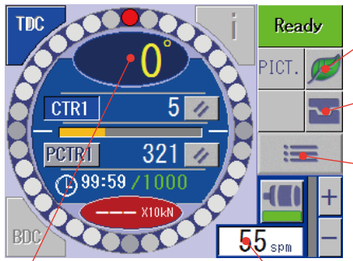


8.4-inch control touch screen
(TPL-110FX, -150FX, and -200FX)
*Option for TPL-45FX, -60FX, and -80FX.

5.7-inch control touch screen
(TPL-45FX, 60-FX, and -80FX)

Operation control displays

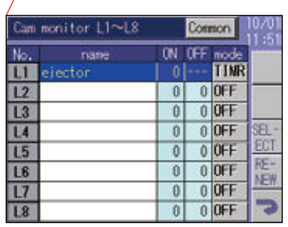
A new layout is adopted to provide visibility and intuitive operation.



Eco-function setting button
Shows the eco-function setting display.

Setup button
Shows the setup display convenient to use when changing dies.

Menu button
Shows the menu display for die information and maintenance information among other information.



Rotary cam setting display

Digital setting display (stamping stroke count)

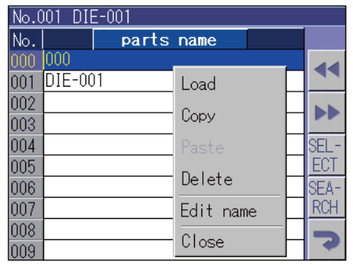
When you press numerical portions, you can set the corresponding counters, cam, or stamping stroke count.

Two-hand control panel with guard rings

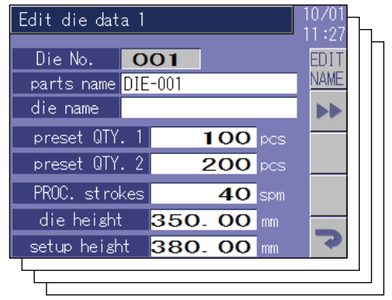
Operability is improved by new guard rings and control buttons arranged not to obstruct the light curtain. Thin control panel (15 mm thinner than conventional panels) suited to a seated operator. Pictographs and English labels are the same as those of the SDE series.

Setting die information and operation

Data set to use dies, or die information, can be stored in the machine (standard 20 dies).
The stamping stroke count and rotary cam data settings can be changed all at once by switching the die information.



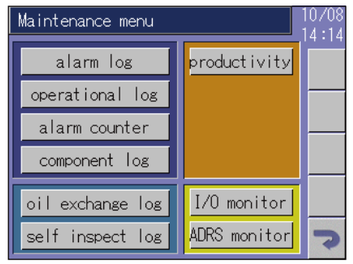
Program save and call



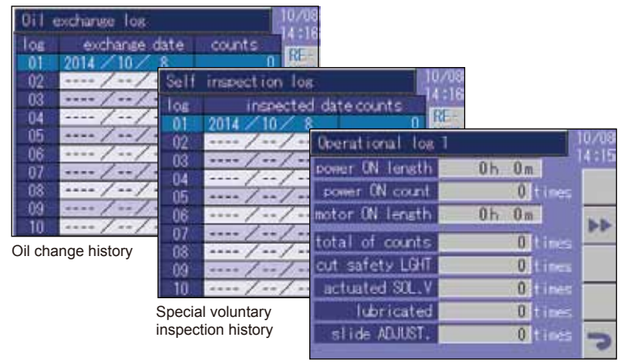
Die information

Maintenance management

Maintenance information required for stable operation, such as oil change history, special voluntary inspection history, and number of times equipment has operated, can be checked on the machine.



Maintenance management menu



Oil change history

Special voluntary inspection history

Operation counts

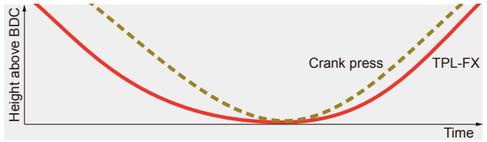
Safety standard

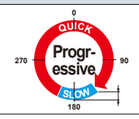
Safety PLCs that meet the requirements of the safety standard ISO 13849-1 are adopted to increase reliability in safety.

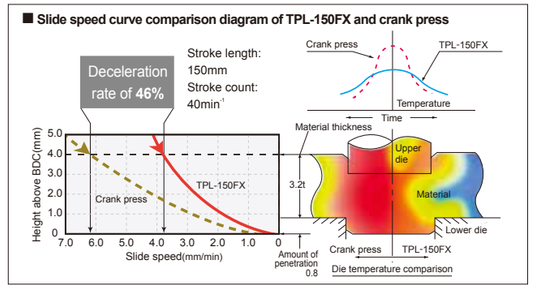
2 Performance-proven functions to unerringly meet fabrication needs (Flexibility)

Progressive type

Completely relied upon for highly accurate blanking and progressive stamping



System expansion	Application	Feature	Slide motion
Coil-fed progressive press line	Best suited for blanking, progressive stamping, and precision stamping	Slowdown from near BDC	



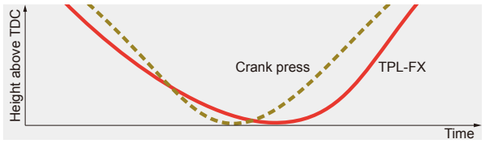
1 Blanking and progressive stamping
Frame rigidity is increased further. Die chipping, and vibration and noise during blanking are reduced. Productivity is increased by 1.8 times as compared with our conventional crank press at the same working speed. Timing instructions can be easily issued to peripheral equipment. A wide range of automation and systematization can be flexibly accommodated.

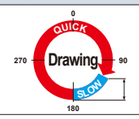
2 Shaving of fine blanked parts
The soft contact of the die with the material eliminates the chipping of the die and stabilizes the quality of parts. Shaving is best suited for precision shearing in which how to maintain tool accuracy is a challenge. Sheared edges can be processed in the shaved condition to improve quality.

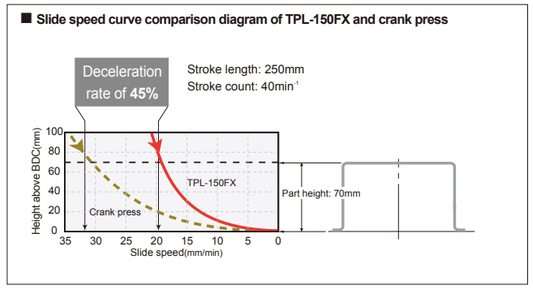
- When a 3.2 mm thick material is blanked, the slide speed decreases 46% as compared with the crank press. Stable processing accuracy is obtained without lowering productivity.
- The TPL-FX link presses have the slide speed reduced in the working range. This slide slowdown reduces the heat generated in the dies during the working operation and prolongs the life of the dies.

Drawing type

The TPL-FX link presses demonstrate outstanding capability in positive deep drawing



System expansion	Application	Feature	Slide motion
Robotic stamping line	Optimal for drawing and bending	Slowdown from position high above BDC	



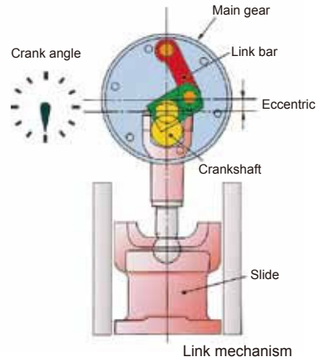
1 Bending and drawing
The slide is decelerated in the working region. This slide slowdown restrains the springback of bent parts and increases the energy capacity of deep drawing from a position high above the BDC by 2.5 times as compared with the crank press. These characteristics of the link motion decidedly satisfy the required part quality.

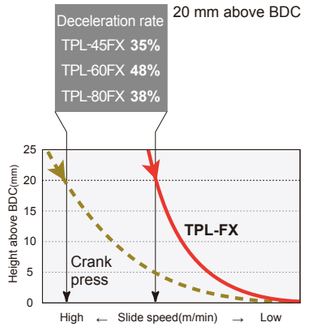
2 Robotic stamping line
The addition of the drawing type, which is good at bending and drawing, to the system configuration helps the gap frame link press to work tremendously in the robotic stamping line.

- The slide speed during the deep drawing of a 70 mm high part is reduced by 45% as compared with the crank press. The critical drawing speed of materials can be increased further.
- The slide speed is reduced in the working range to restrain the wear of the die due to its heat generation and the scratching of parts due to the oil film breakage. The slide then returns at the high speed characteristic of the link motion to improve productivity positively.

Link mechanism to provide incomparably high productivity and accuracy

The link mechanism with the stroke cycle characteristics of fast approach, slow working, and fast return accomplishes pressworking with higher productivity and accuracy without reducing the speed of rotation. The crankshaft is deviated from the center of the main gear rotating at the same speed. The link bar in the intermediate position decelerates the slide in the working range. This link motion reduces the generation of noise and vibration. The slide returns quickly in the non-working range. As compared with the crank press at the same working speed, productivity is increased by 1.2 to 1.4 times for the TPL-45FX, -60FX and -80FX and by 1.6 to 1.8 times for the TPL-110FX and -150FX.





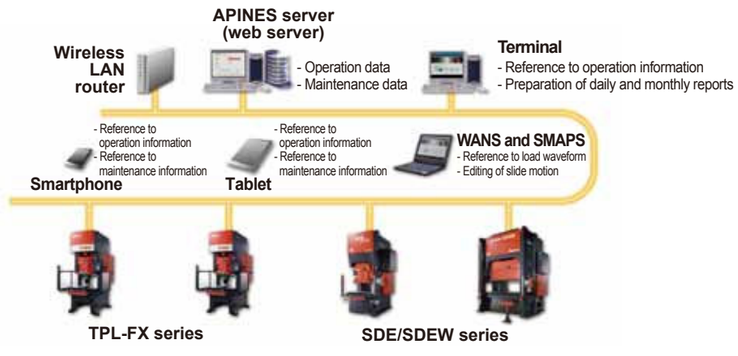
3 High expandability in consideration of digital network era (Futurity) options

APINES*

Visualization of press operating conditions and maintenance information with touch screen PC.
The Ethernet is equipped as standard.

- General-purpose presses to servo presses are all digital network ready
- Real-time shop floor monitoring
- Operation and production history, time chart
- Alarm information, maintenance information
- Tablet and smartphone ready

APINES configuration diagram



Shop area monitor

Operation time chart

*Amada Press-machine Information Network System

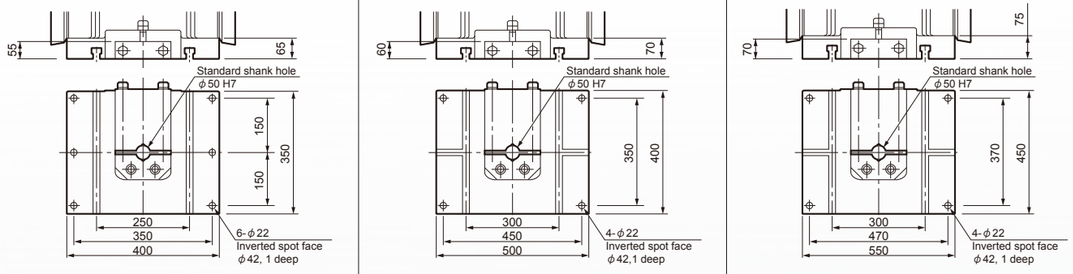
Standard die space dimension tables

■TPL-FX series

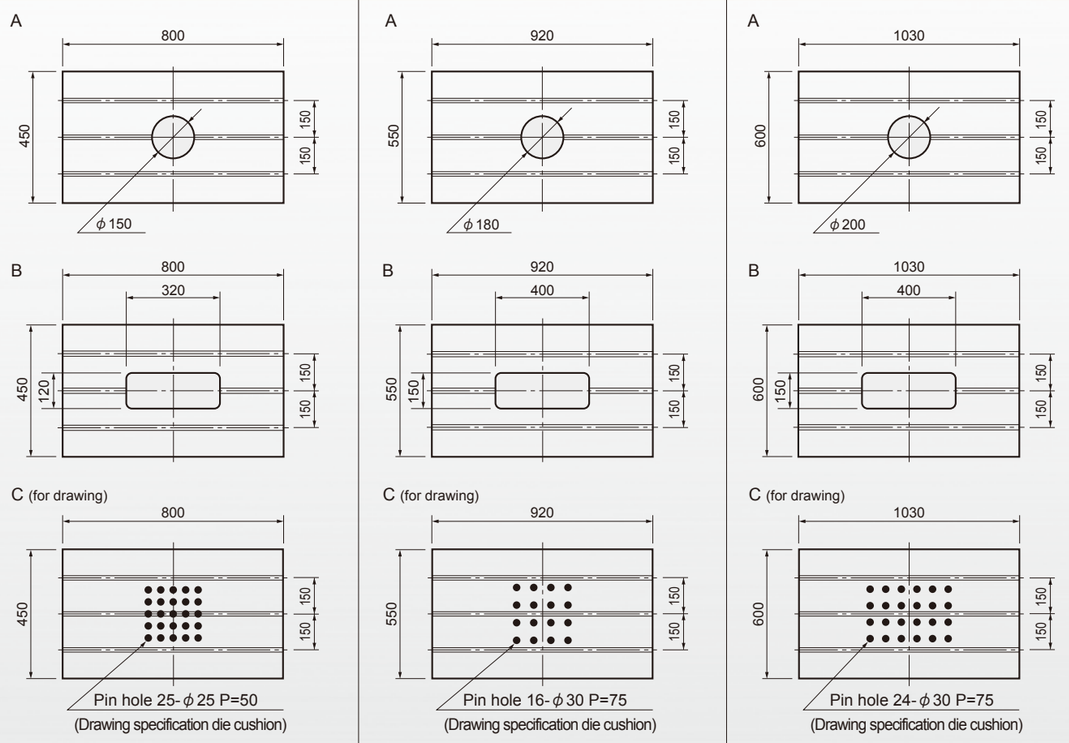
Unit: mm

TPL-45FX / TPL-60FX / TPL-80FX

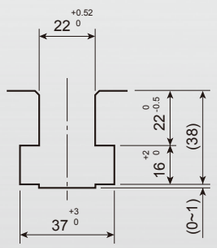
Slide bottom drawings



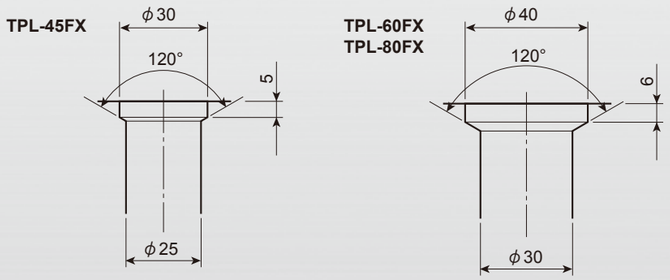
Bolster plate drawings



T-slot detail



Cushion pin hole detail

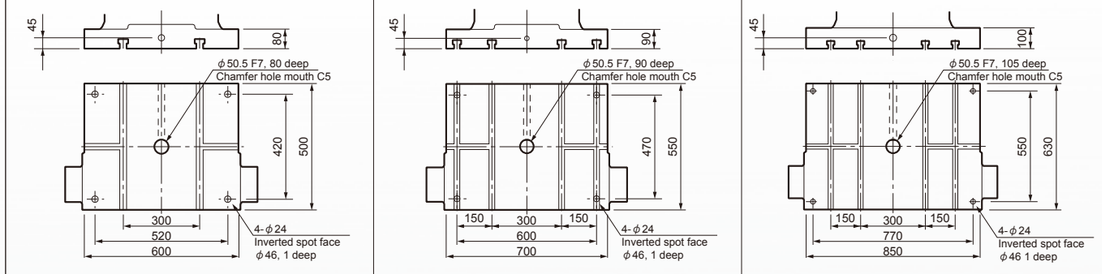


■TPL-FX series

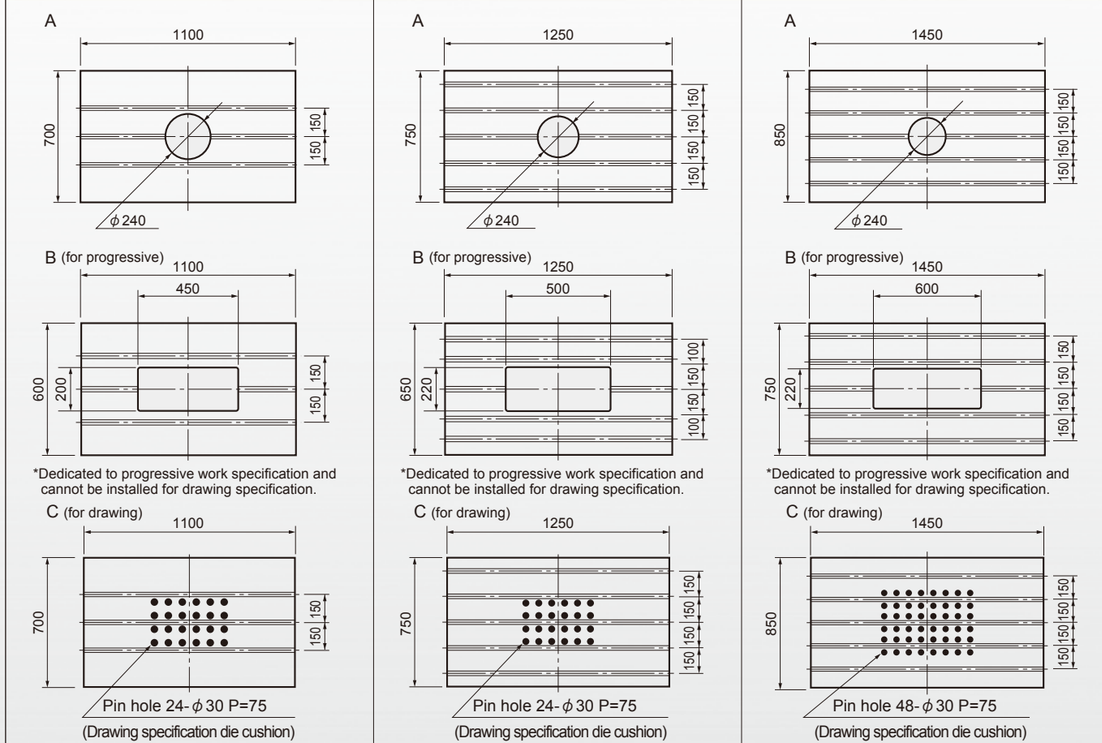
Unit: mm

TPL-110FX / TPL-150FX / TPL-200FX

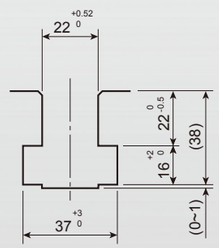
Slide bottom drawings



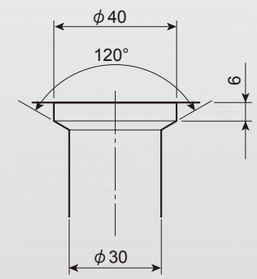
Bolster plate drawings



T-slot detail



Cushion pin hole detail



Specifications and dimension drawings

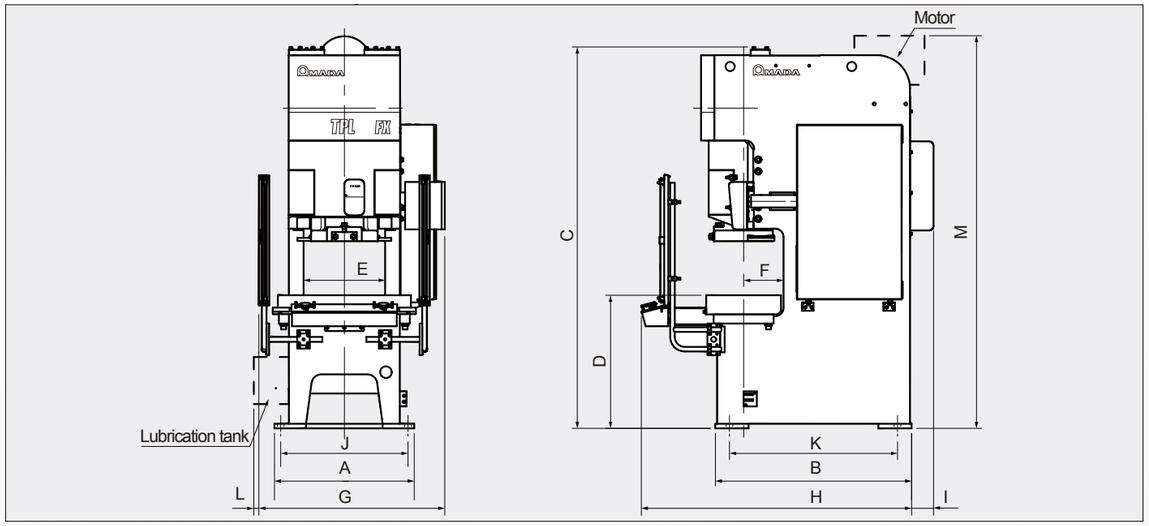
■Machine specifications

Model		TPL-45FX		TPL-60FX		TPL-80FX	
Menu		Progressive	Drawing	Progressive	Drawing	Progressive	Drawing
Capacity	kN	450		600		800	
Stroke length	mm	70	140	90	160	100	180
Tonnage rating point above BDC	mm	6.5	5.5	6.5	5.5	7.0	6.0
Strokes per minute (stepless)	min^{-1}	100~180	55~90	85~150	40~75	80~130	40~70
Flywheel energy (stepless)	kJ	9.0~29.1	5.9~15.8	9.3~29.0	6.7~23.6	14.4~38.0	10.2~31.2
Die height	mm	255	290	290	335	320	350
Slide adjustment	mm	60		70		80	
Slide face dimensions (LR×FB)	mm	400x350		500x400		550x450	
Bolster dimensions (LR×FB)	mm	800x450		920x550		1030x600	
Bolster thickness	mm	115		125		135	
Frame gap	mm	240		285		310	
Open back	mm	490		578		640	
Working surface height	mm	800		850		850	
Main motor	kWxP	5.5×4		5.5x4		7.5x4	
Die cushion capacity	kN	—	23	—	35	—	63
Die cushion stroke length	mm	—	70	—	80	—	80
Die cushion pad area (LR×FB)	mm	—	260x235	—	370x265	—	480x300
Overall machine height	mm	2365	2410	2620	2740	2785	2915
Mass of machine	kg	4300		6300		8000	
Slide adjuster		Motorized		Motorized		Motorized	
Lubrication system		Automatic OG	Automatic grease	Automatic OG	Automatic grease	Automatic OG	Automatic grease
Variable-speed drive		Inverter		Inverter		Inverter	

●Automatic OG: Automatic oil circulation + Automatic grease

Model		TPL-110		TPL-150		TPL-200	
Menu		Progressive	Drawing	Progressive	Drawing	Progressive	Drawing
Capacity	kN	1100		1500		2000	
Stroke length	mm	125	200	150	250	175	300
Tonnage rating point above BDC	mm	13.0	6.0	8.0		6.9	6.0
Strokes per minute (stepless)	min^{-1}	50~100	30~60	40~80	25~45	35~70	25~45
Flywheel energy (stepless)	kJ	11.8~47.2	12.8~51.2	13.5~53.3	21.0~67.9	19.5~78.0	40.9~132.5
Die height	mm	350	390	380	420	415	460
Slide adjustment	mm	100		100		110	
Slide face dimensions (LR×FB)	mm	600x500		700x550		850x630	
Bolster dimensions (LR×FB)	mm	1100x600	1100x700	1250x650	1250x750	1450x750	1450x850
Bolster thickness	mm	150		160		180	
Frame gap	mm	310	360	340	390	385	435
Open back	mm	720		810		920	
Working surface height	mm	850		900		1000	
Main motor	kWxP	11x4		11x4		15x4	
Die cushion capacity	kN	—	75	—	95	—	140
Die cushion stroke length	mm	—	80	—	80	—	100
Die cushion pad area (LR×FB)	mm	—	480x305	—	540x345	—	640x445
Overall machine height	mm	2960	3075	3225	3435	3605	3875
Mass of machine	kg	11000		16000		24000	
Slide adjuster		Motorized		Motorized		Motorized	
Lubrication system		Automatic grease		Automatic grease		Automatic grease	
Variable-speed drive		Inverter		Inverter		Inverter	

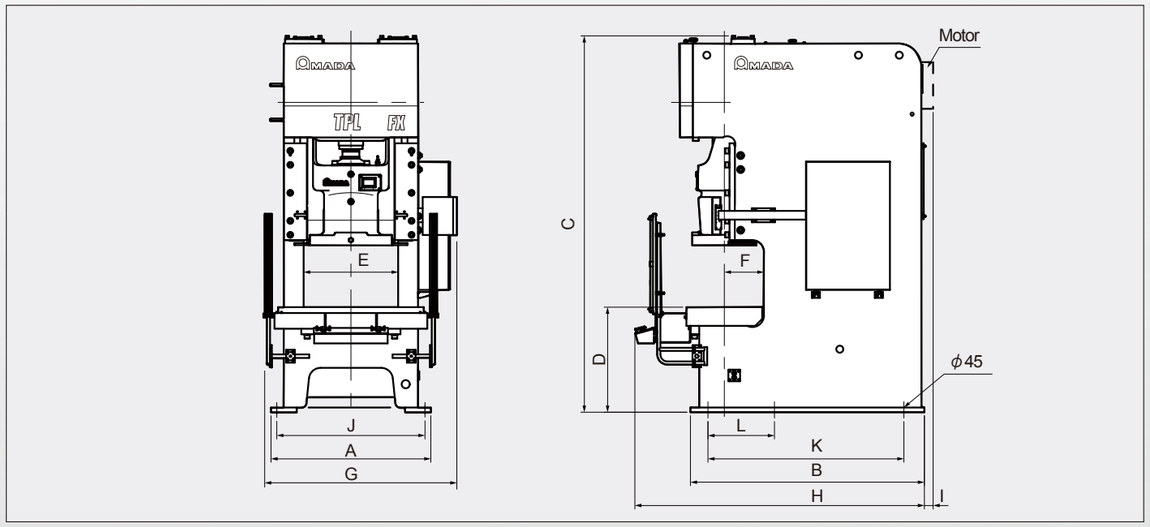
■Dimensions / TPL-45FX~TPL-80FX



Unit: mm

		A	B	C	D	E	F	G	H	I	J	K	L	M
TPL-45FX	Progressive	840	1180	2293	800	490	240	1120	1630	135	766	1010	25	2357
	Drawing		1225	2409					1590			1055	—	2399
TPL-60FX	Progressive	1000	1405	2615	850	578	285	1245	1855	25	900	1205	30	2620
	Drawing		1450	2740					1815			1250	—	2665
TPL-80FX	Progressive	1080	1545	2782	850	640	310	1340	2020	15	980	1330	15	—
	Drawing		1620	2912					1995			1405	—	—

■Dimensions / TPL-110FX~TPL-200FX



Unit: mm

		A	B	C	D	E	F	G	H	I	J	K	L
TPL-110FX	Progressive	1250	1745	2960	850	720	310	1495	2255	105	1150	1465	—
	Drawing		1795	3075			360	1535	2240			1515	
TPL-150FX	Progressive	1370	2005	3225	900	810	340	1650	2485	15	1270	1680	570
	Drawing			3435			390	1675	2405				
TPL-200FX	Progressive	1540	2255	3605	1000	920	385	1825	2750	15	1420	1930	500
	Drawing			3875			435		2685				