

Comparison TEC B-x72 - CHESS/64-0x

Overview

The B x72 series includes the B-482, B-572, B-672 and B-872 and covers the same range of print widths as the CHESS/64-0x. All print at a maximum speed of 200 mm/sec (8 ips) and have 12 dot/mm (300 dpi) resolution.

It is a well-known printer family, also equipped with Near Edge heads, positioned at the high end and therefore very interesting to compare.

The B-572 was the actual printer tested and compared to the CHESS 05/64-05.

Available standard features are: Tear off edge, ribbon saver system, serial/parallel interface, print head check, internal rewinder and dispenser.

Optional interfaces are; Twinax/Coax and Ethernet.

Optional finishing devices are; knife and external rewinder.

Motor Drives: 1 stepper motor for media transport, 2 DC motors for ribbon, and 1 stepper motor for dispenser/internal rewinder

Short summary: A high-end printer, similar to the former TTX x50/Wildcat series. Compared to the CHESS/64-0x printers there are some considerable deficiencies—especially computing speed, print speed, media handling and basic operation.

Specification Comparison

Speed of First Label

Printing using printer resident fonts and barcodes or huge graphics or multiple labels across the web, from small to big labels—the CHESS/64-0x printers are 30% and up to 500% faster than the B-572!

Print Speed

The maximum print speed for the B-x72 printers is 8 ips. The maximum print speed for the CHESS/64-0x ranges from 12 ips to 10 ips to 8 ips depending on the model (the lower speeds being for the CHESS 06/64-06 and CHESS 08/64-08 respectively). The higher print speed for the CHESS/64-0x can be used for practically all applications. The CHESS/64-0x handles also both low to high volume applications including peak production requirements.

Media Size Range

The CHESS/64-0x class with 4 machines covers all widths from 25.4mm to 254mm with the same 300 dpi resolution. The length ranges from 5mm up to 2m independent of the finishing device. And even 15 m with an optional card is possible!

The TEC B-x72 has a similar range of print head widths and covers media widths from 48mm to 225mm. The CHESS/64-0x printers can print on narrower webs making them more versatile.

The minimum label length for the B-x72 varies from 5.5mm to 8mm depending on the model. Finishing devices increase the minimum length of the label and non-imprintable area in 1:1 mode considerably, up to 23 and 25mm. The maximum label length is approximately 300mm for the B-572/672/872, beyond that an optional card is needed. The B-472 has a maximum label length of 2.7m.

Ribbon

The minimum ribbon width for the B-482/572 is 68mm and 102mm for the B-672. The 30mm minimum width for the CHESS 4/5/6 and 64-04/05/06 means lower operating costs for some applications.

Ribbon saver is standard for both products. The CHESS/64-0x class works effectively at all speeds. The efficiency of the B x72 class suffers at speeds of 6 ips or higher.

Print Head Check

The CHESS/64-0x will soon have a print head check feature available. It will monitor the head elements and, if a problem develops, try to automatically shift the format image so the bad element corresponds to a non-print position. If this is not possible the printer will stop and alert the operator. The check can be per-

formed at the start and end of each job as well as at operator specified intervals. This will provide improved security for print quality and potentially extend print head life.

The TEC B-x72 also has a print head check system but with limited functionality. It only checks the print head at the start of each job so for long jobs many bad labels could be printed. The CHESS/64-0x can also check at operator specified intervals reducing waste.

The TEC B-x72 cannot shift the image to avoid bad print head dots so the head life cannot be extended.

Connectivity

Centronics, RS 232/485 are standard for both printers. The CHESS/64-0x class runs a serial transmission speed of 115.2Kbaud for modern industrial requirements. The B-x72 class is limited to 19.2 Kbaud only.

For the Bx72 class a High Speed PC Interface Board option is offered. But the transmission cable distance is limited to about 1.5m.

Options

Rotary knife, rewinder and dispenser, external signal inputs and memory expansion cards are available for both printers. For the B-x72 series the media handling options increase the minimum length requirements but for the CHESS/64-0x this has no impact.

CHESS/64-0x class can be equipped as well with a scanner, an applicator and a front infeed module. Plus 2 output signals for integration and synchronization with other systems.

Physical Construction

Externally both brands have a steel case and a rugged construction design. For the B-x72 series the internal design is not as rugged. The CHESS/64-0x class uses bearings instead of bushings, there are aluminum ribbon mandrels instead of plastic, large motors and gears and drive belts instead of less rugged devices, high precision parts instead of low cost items all leading to differences in terms of durability for high volume industrial applications.

Dimensions

No real difference between products.

Design

Both brands have nice contours with curves, smooth edges, inclined surfaces and attention to design details—industrial isn't necessarily boring.

User Friendliness

The procedures to operate the unit including insertion of media and adjustment of parameters are much easier on the CHESS/64-0x class. Structured menus with simplified key selections make for easy adjustments and set-up of all operating parameters. Also there are more operating parameter selections to allow the printer to function in a wider variety of applications.

Price and Maintenance Costs

On a total cost of ownership basis the CHESS/64-0x is expected to provide a better value. The higher print speed with no sacrifice in durability should provide higher productivity and throughput.

Detail Comparison

Print Quality at High Speed

The maximum print speed is only 8 ips for the TEC B-572 versus 12 ips for the CHESS 05/64-05 what a difference in value that already makes!

On the CHESS/64-0x, both sides of the rollers and head are supported in a solid construction. This gives the engine a stability which provides the highest print quality independent of speed since the head remains fixed very precisely in its ideal position under any condition.

For the TEC B-572, the components and the entire construction reflect its lower print speed capability. Increasing the speed beyond 8 ips would mean a major change in the mechanical and electrical design—like motor drivers, power supply, ribbon drive system, ribbon saver, media feed system and much more—you get what you pay for.

Media Insertion, Width Adjustments and Media/Ribbon Transport Performance

For insertion of paper/ribbon the print engine of the B 572 can be opened from the side by means of a lever. The paper position must always be centered in relationship to the print head in order to have an equal pressure across the web. Subsequently changing media width requires several additional adjustments at the media unwinder, ribbon unwind/rewind and the lateral media guides.

It's a much easier job with the CHESS/64-0x printers. Since the printer operates from a fixed edge only half the adjustments are required to change media width. The opening and closing of the head is done automatically as part of the basic operating modes. Plus the media can be conveniently fed through or removed from the print engine by pressing 2 keys on the operator's panel.

There are 4 advantages provided by this concept:

- No risk of forgetting to make the proper adjustments for different paper widths and creating badly imprinted labels.
- No risk of prematurely worn down print heads due to wrong paper width adjustment.
- No risk of a flat spot on the print roller from leaving the head closed for a long period of time.
- No need to open/close the head mechanism by means of a lever, i.e. one less operation and the printer is always ready.

For the CHESS/64-0x there is a rotating mandrel that supports 1.5", 3" and 4" diameter rolls. For the TEC B-572 this is add-on accessory that must be ordered.

A small dancer is mounted on the B-572 above the media roll to compensate for media slack at high speeds. The CHESS/64-0x printers have a long throw dancer providing better tension control thus leading to high registration accuracy at any speed even with slippery label liner material.

Lateral media guidance for the B-572 is not very effective since the guides are quite distant from the head, are very short and require the media to follow a narrow curvature. The media can slip out or wrinkle especially when running full rolls with the labels on the outside of the roll. Paper jams in the print engine can also result. In the case of a jam, access to the feed path is restricted for almost 130 mm leading to the print head—what a nightmare.

With the CHESS/64-0x the guides are long and close to the head with a straight paper path. A high registration accuracy is achieved, the web is held securely and there is little chance for paper jams.

The ribbon mandrels for the B-572 are plastic and there are no special provisions to handle the requirements of a centered media configuration. For the CHESS/64-0x the construction is solid industrial aluminum/steel and has a fixed inner side zero line. It doesn't need ribbon width related adjustments and reduces set-up time and operator related problems.

The B-572 has a factory adjusted, fixed ribbon torque system so using thin and/or narrow ribbon with large print areas may lead to ribbon breakage as the torque can't be lowered. The minimum ribbon width is specified as 68mm for the B-482/572 and 102mm for the B-672.

With the adjustable unwind and rewind torque at the ribbon drive, the CHESS/64-0x printers can handle a wider variety of ribbons down to a minimum width of 30mm, or less if the torque is readjusted.

The B572 uses a dual DC motor arrangement to handle the ribbon back feed. It only works in one unwind direction and an untrained operator may experience problems with set-up causing increased set-up time or even expensive repairs.

The CHESS/64-0x uses a stepper motor supported, maintenance free system that doesn't have these kinds of limitations and provides enhanced reliability. There are no limits for the unwind direction—either ribbon ink side in or out can be used. Also, the extra ribbon transport shaft between the head and ribbon rewinder provides consistent separation of the ribbon from the media resulting in excellent print quality and reliable operation and prevention of ribbon wrinkles.

Both printers are equipped with a dual roller feed system—a transport and a print roller. Thus offering high registration accuracy and a highly effective ribbon saver. But the CHESS/64-0x ribbon saver has several performance advantages.

The TEC B 572 starts saving ribbon beyond 20mm of non-imprinted area. Loss of ribbon depends on print speed and is 5 mm at 3 ips, 8 mm at 5ips and 17 mm at 8 ips. The CHESS/64-0x printers start ribbon saving with smaller non-imprinted zones (between 10 and 12 mm) and there is less waste. And even with sensitive materials there are no stop/smear marks due to the synchronization of ribbon and media by means of the stepper motor controlled systems.

Fonts and Barcodes

Both printers have a considerable font library providing an assortment of fixed size and scalable internal

and downloadable fonts. The same is true for the barcodes.

The major differences are the CHESS/64-0x printers focus on typefaces without serifs as those are more appropriate for thermal transfer applications—especially in the small sizes. But CHESS/64-0x printers also support 2 scalable typefaces (serif and sans serif) with rotation in steps of 1 degree!

For the CHESS/64-0x all four popular 2-dimensional barcodes are standard and don't require extra memory or upgrades.

Display, Menu and Operator Control

The B572 operator interface seems to be set-up for basic printer operation only and is not designed for easily setting-up the operating parameters or making printer adjustments. It only has a 1 line illuminated with 3 keys and 3 LEDs and that's it. Access to individual parameters and their adjustment is quite an effort. Some settings are made via the front panel menu and some are adjustable via 2 dip switches. The orientation of the display is quite vertical and not easy to read in many circumstances.

The CHESS/64-0x series has a 2 line 16 character display and 4 keys with symbols angled for optimum viewing. The rich menu of parameters makes the CHESS/64-0x more versatile and easier to operate. It requires less operator training and adjustments can be made more quickly. There are also 3 access levels that can be set to protect critical settings. Additionally features like the automatic gap initializing with manual mode allows adjusts for multicolored preprinted labels which convinces even some Sato dealers to sell CHESS/64-0x printers in special applications.

The CHESS/64-0x printer's comprehensive list of error messages helps the operator with set-up and basic machine functions and allows the supporter to analyze problems via the phone, saving both time and money.

And the choice of format and/or manual control of the menu parameters are appreciated by everyone.

Media Specifications

Thickness: Both printers are equipped with Near Edge heads and can print on a wide range of materials. CHESS/64-0x printers are proven up to 240 g/m² and even 300 g/m² at widths of 4 inches can be accommodated in unique applications. Also the CHESS/64-0x can print on these materials at a higher speed with no loss of reliability due to its more rugged construction and powerful electronics.

Length: The B 572 label/tag minimum length is 10mm. When finishing devices are attached the minimum length increases considerably. For the Dispenser it is 25.4mm and with the Cutter it is 38mm!

The standard maximum length for the B-572/672/872 is around 300mm and with memory expansion up to approximately 1m. To have printing and imaging compiling "on the fly" (i.e. printing one job while creating the image for the next) the maximum image length is 149mm before the memory expansion option is required.

CHESS/64-0x printers offer a standard minimum length of 5mm and this can be lowered if required. The minimum length is independent of what finishing device is attached. Neither cutter, dispenser nor tear off edge will raise this value due to its highly functional back feed system.

Standard max length for the CHESS/64-0x exceeds 2 meters, which is more than adequate for most any application. No memory extension is normally required. Printing banners, i.e. extra long labels, (maybe your next new sales opportunity) the CHESS/64-0x printers can be equipped with up to 32MB. Labels of up to 15 meter at 4 inch width can be printed in short time.

Connectivity

Both printers have a parallel and serial interface as standard. CHESS/64-0x printers have a serial interface with max speed of 115.2KBaud were the B-572 ends up with 19.2 KBaud.

An optional High Speed PC interface Board (ISA bus) for the B-572 requires a separate PC and is limited to a maximum transmission distance of 1.5m. Its performance isn't tested in this comparison as the CHESS/64-0x printers doesn't need these extras for maximum performance.

Maintenance

Print Head -The print head for the TEC B-572 can be cleaned by the operator but replacement would require tools and most times a technician.

For the CHESS/64-0x the heads are easily replaced with no tools. The mount is pre-adjusted with high precision and does not need realignment. But if required the position can be readjusted for special applications. Also worth mentioning is that the Near Edge head on the CHESS/64-0x has a “self cleaning” characteristic. This provides better uptime and more consistent, high quality print even after long-term use. And don't forget the longer head life, which results in lower operating costs.

Gap Sensor

Admittedly the sensor isn't easy to clean on the CHESS/64-0x printers, but it is extremely difficult on the TEC B-572—a really hidden construction. The upside is that the B-572 sensor is adjustable over 2/3 of the entire media width.

Options

Knife: No information available for the TEC knife. The minimum media length is 38 mm if the knife is installed.

The CHESS/64-0x has a fast and powerful modular knife and is only 20mm from the print line. The back feed system is very accurate and allows a fully imprintable label in 1:1 demand mode. The knife is capable of cutting media up to 0.25mm thick and 4 inches wide making it appropriate even for tags. An average life of more than 1.5 million cuts even on critical TYVEK material can be expected.

Rewinder: The CHESS/64-0x rewinder module is:

- mounted externally for easy access and rewinds up to a diameter of 210mm. This saves operator time or the need for an additional separate rewinder,
- available in different core sizes so it matches the next step of the application,
- self-adjusting to print speed so no loose rolls or other mismatches.

None of the above features are provided by the internal rewinder on the B-572.

Dispenser: The B-572 printer pulls the backing paper directly from the internal rewinder roll which leads to inconsistent performance depending on the varying diameter of the roll. For regular paper labels with good die cut quality the performance is probably good enough.

For the CHESS/64-0x a separate feed roller/pressure roller combination pulls the backing paper around the dispense edge. This provides consistent performance for dispensing and excellent registration accuracy on most any label material.

Simply try to dispense a thin plastic label on a heavy backing paper and the difference will show up clearly. Or even more often, the die cut at the label isn't perfect. Even in these cases your customer will see a reliability of performance probably never experienced before.

The dispenser of the CHESS/64-0x printers can be combined with our applicator unit. This isn't available on the TEC products.

Memory Cards: For the CHESS/64-0x the new ATA card slot is standard and provides options up to 48MB of additional memory. This allows an incredible expansion of functions like selectable “auto-start” files, look up tables, an enormous quantity of additional fonts and graphics and an extremely large image buffer for extremely large labels.

The TEC offers few of these features.

What TEC B572 Printers Don't Have Compared to CHESS/64-0x Printers?

- Automatic print head dot check that can check at user specified intervals within a job and also shift the image in case a dot fails (the TEC can not do the last two). This reduces waste, extends print head life and increases uptime.

- Rotation of scalable fonts in steps of 1 degree
- Print speeds beyond 8 ips
- Heavy duty drivers for the stepper motors that have reserve capacity even at the highest speeds
- High capacity power supply for high density printing even at 12 ips
- Modular boards for peripheral devices
- Adjustable bar code ratio

What CHESS/64-0x Printers Don't Have Compared to TEC?

- Sensor adjustment across half the print width — CHESS/64-0x has a full-size sensor option
- Automatic serial/parallel interface detection
- Automatic detection of print head resistance and set-up of operating parameters.