

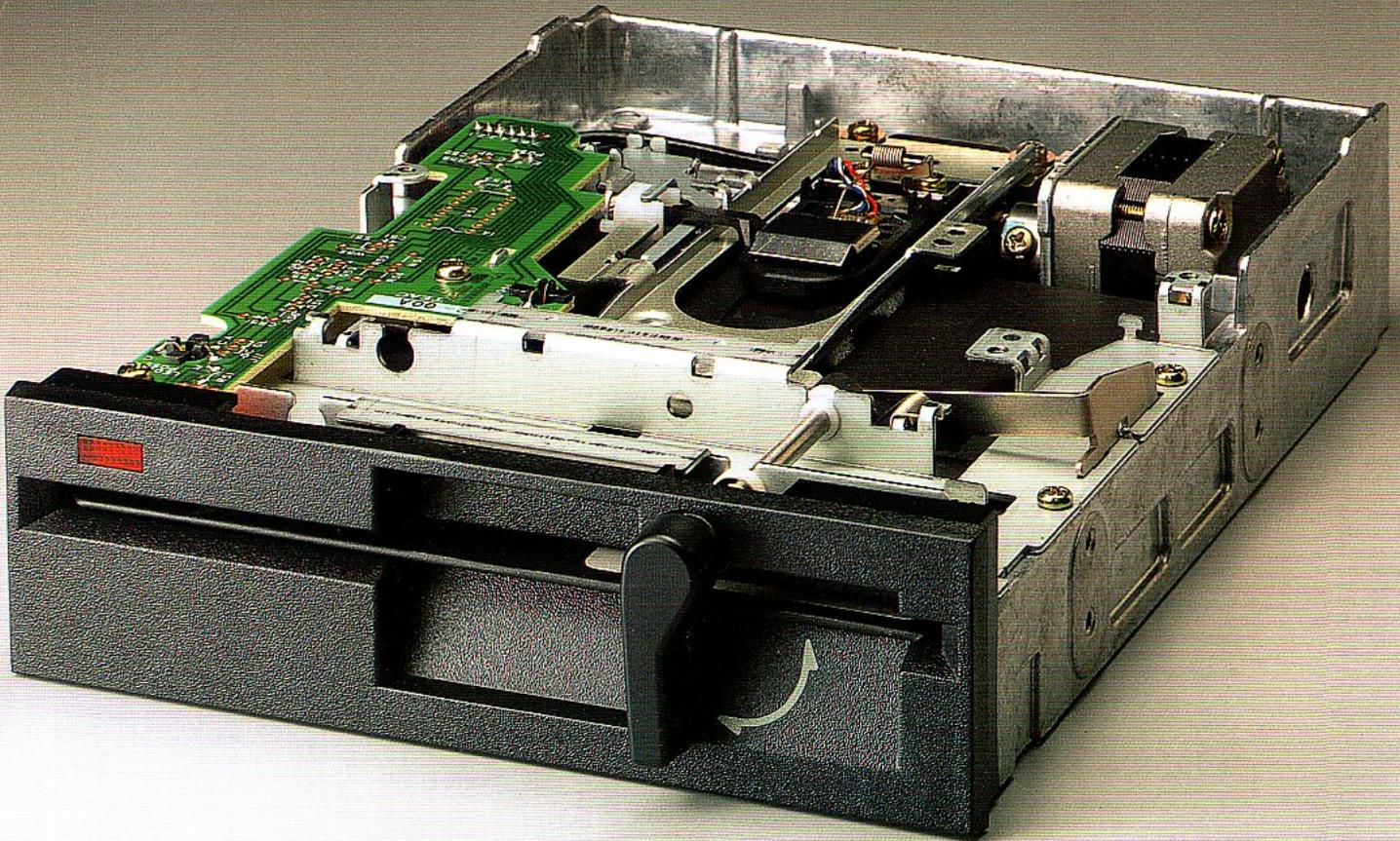
TEAC®

5-1/4-inch
Mini Floppy
Disk Drive

11/93
FD-55R SERIES

FD-55BR / FD-55FR / FD-55GR / FD-55GFR

- Four models to match all system needs
- Low power consumption (Standby: 1.0 W; Operating: 3.9 W)
- Reduced heat generation for increased reliability
- Simplified mechanism
- Complies with UL and CSA safety standards



TEAC's FD-55 Series of mini floppy disk drives are widely used as external memory devices. Now the new R Series, with a newly developed custom LSI and low energy circuitry, offers improved performance and functions.

The FD-55R Series consists of four models, from the double-sided, 48 tpi FD-55BR to the FD-55GFR, capable of reading from five different types of disks. You can choose the drive to best match your system requirements. Electronic and mechanical improvements have resulted in a simplified mechanism with low power consumption and reduced heat generation.

Low power consumption

TEAC has drastically reduced the number of components and achieved more efficient circuitry by integrating almost all circuits in two LSIs. The result is low power consumption: only 1.0 W waiting and 3.9 W in operation.

4 Models, 5 Types

The four models available include the FD-55BR, a 48 tpi double-sided 500 KB drive, and the powerful FD-55GFR that can read five types of disks.

Improved reliability

A thorough upgrading of electronic circuits has reduced power consumption, while heat generation has been substantially reduced. The result is high precision and reliability.

High precision head positioning

The high precision hybrid stepping motor com-

bined with a highly precise band actuator permits high accuracy in head positioning.

The Powerful FD-55GFR

The revolutionary FD-55GFR can read five types of 5-1/4 inch disks (from 48 tpi one-sided 250 KB to 96 tpi double-sided 1.6 MB type). The 1.6 MB type is its basic disk format.

Medium to be used	Normal density				High density
	48 tpi		96 tpi		
Track density	Single sided	Double sided	Single sided	Double sided	Double sided
Memory capacity	250 KB	500 KB	500 KB	1 MB	1.6 MB
Data transfer rate (K bit/sec)	250				500
Disk rotation speed	300 rpm				360 rpm
Data read	○	○	○	○	○
Data write	-	-	○	○	○

The simple mechanism is the fruit of repeated improvements.

Meets UL and CSA safety standards.

SPECIFICATIONS

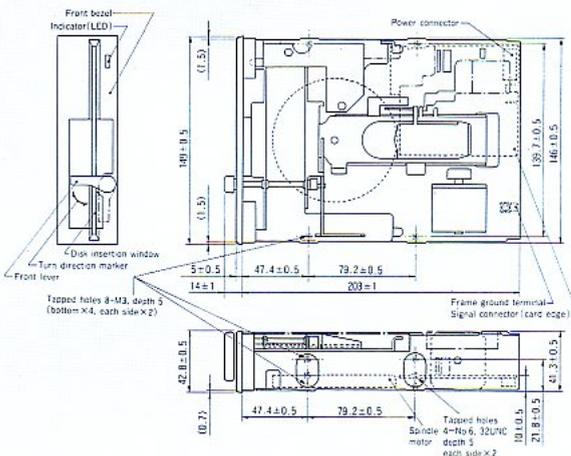
Recording Method:	FM or MFM
Media:	5-1/4-inch mini floppy disks High density or normal density
Starting Time:	400 msec (300 rpm) 500 msec (360 rpm)
Average Latency Time:	100 msec (300 rpm) 83.3 msec (360 rpm)
Index:	1/revolution
MTBF:	More than 10,000 hours (FD-55FR/GR) More than 20,000 hours (FD-55BR/GFR)
MTTR:	30 minutes or less
Error Rate:	Soft read error: less than 1/10 ⁹ bits (Retry up to two times) Hard read error: less than 1/10 ¹² bits Seek error: less than 1/10 ⁶ seeks
Safety Standards:	Complies with UL, CSA, TÜV
Ambient Temperature:	Operating: 4 to 46°C (40 to 115°F) Transportation: -40 to 65°C (-40 to 149°F) Storage: -22 to 60°C (-8 to 140°F)
Temperature Gradient:	Operating: 15°C (27°F)/hour (no condensation) Storage and transportation: 30°C (54°F)/hour (no condensation)
Relative Humidity:	Operating: 20 to 80% (no condensation) Maximum wet-bulb temperature 29°C (84°F) Transportation: 5 to 95% (no condensation) Maximum wet-bulb temperature 45°C (113°F) Storage: 10 to 90% (no condensation) Maximum wet-bulb temperature 40°C (104°F)
Vibration:	Operating: less than 0.5 G (less than 55 Hz) less than 0.25 G (55 to 500 Hz) Transportation: less than 2 G (less than 100 Hz)
Shock:	Operating: less than 10 G (less than 10 msec) (FD-55FR) (less than 40 G) (FD-55GR) Transportation: less than 40 G (less than 10 msec) Operating: less than 5 G (less than 11 msec) (FD-55BR) (less than 11 msec) (FD-55GFR)
Dimensions:	146W × 41.3H × 203D (mm) 5-3/4W × 1-5/8H × 8D (inch)
Weight:	1.1 kg (2.42 lbs) (FD-55FR/55GR) 1.0 kg (2.2 lbs) (FD-55BR/GFR)

Features and specifications are subject to change without notice.

		FD-55BR	FD-55FR	FD-55GR	FD-55GFR			
Data Capacity (Kbyte)	Unformatted	Per track	6.25	6.25	10,416	High density: 10,416	Normal density: 6.25	
		Per disk	500	1000	1604	1604	1000	
	Formatted (16 sectors/track) ¹	Per sector	0.256	0.256	0.512	0.512	0.256	
		Per disk	327.68	655.36	1182.7	1182.7 (1228.8)	655.36	
Data transfer rate		250	250	500	500	250/300 ²		
Single-sided/Double-sided		Double-sided						
Innermost track bit density (bpi)		5876	5922	9646	9646 (9870)	5922		
Innermost track flux density (frpi)		5876	5922	9646	9646 (9870)	5922		
Tracks/disk		80	160	154	154 (160)	160		
Track density		96						
Number of cylinders		40	80	77	77 (80)	80		
Track radius (mm)		Outermost						
		Side 0: 57.150 Side 1: 55.033						
Innermost		Side 0: 36.513 Side 1: 34.396		Side 0: 36.248 Side 1: 34.131		Side 0: 37.042 (36.248) Side 1: 34.925 (34.131)		
		Side 1: 34.925		Side 1: 34.925		Side 1: 34.131		
Average access time (msec)		93	94	91	91 (94)	94		
Track to track time (msec)		6						
Settling time (msec)		15						
Rotation speed (rpm)		300		360		300/360		
Power Requirements (A)	DC + 12 V ± 5%	Permissible ripple	200 mVp-p					
		Standby	0.01 A typ, 0.02 A max	0.03 A typ, 0.04 A max			0.01 A typ, 0.02 A max	
		Operating	0.22 A typ, 0.54 A max					
	DC + 5 V ± 5%	Permissible ripple	100 mVp-p					
Standby		0.18 A typ, 0.23 A max	0.23 A typ, 0.28 A max			0.18 A typ, 0.23 A max		
Operating		0.25 A typ, 0.32 A max	0.3 A typ, 0.38 A max			0.28 A typ, 0.35 A max		
Power Consumption (W)	Operating	3.9		4.1		4.0		
	Standby	1.0		1.5		1.0		

¹ The FD-55GR/FD-55GFR (high density) is for 15 sectors/track. * The value in () for FD-55GFR is for 160 tracks.
² Value for when the left side is 300 rpm and the right side is 360 rpm. * Specifications apply when the MFM recording method is used.

External Dimensions (units mm)



TEAC[®]

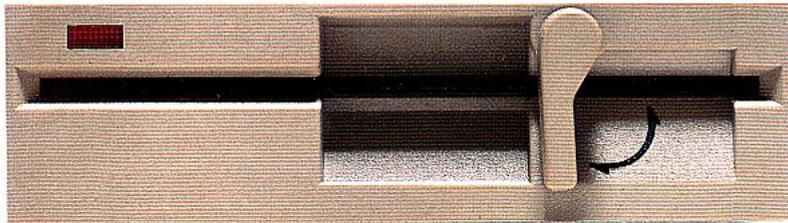
DATA STORAGE PRODUCTS



A Passion For

For the past three decades TEAC has been dedicated to the research, design, and manufacture of precision magnetic recording systems. TEAC has established a reputation for quality and performance in every major field of recording and data storage speciality wherever accuracy and reliability are essential. In high performance airborne video, recordable videodisc, analog and digital data storage, TEAC is the standard of excellence worldwide.

Beginning as early as 1961 we provided recording heads for the emerging mainframe computer industry. Now, we're a major supplier of magnetic recording heads and systems for OEMs worldwide. Our new generation high-density ferrite recording heads provide greater durability critical to long-term reliability.



With over 15 million FD-55 Series drives sold, the TEAC Arrow is recognized worldwide as the standard for precise performance and exceptional reliability.

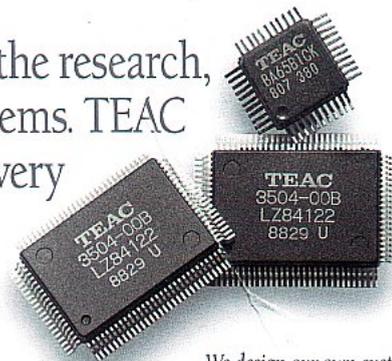
Our sophisticated transport systems assure the high level of accuracy required to meet the stringent demands in today's computer industry. With both 5¼-inch and 3½-inch drives in production, TEAC is the world's leading supplier of floppy disk drives. Over 15 million of our FD-55 Series drives have been sold. But we're not stopping while we're ahead.



TEAC is the reliable source whenever exceedingly accurate recording systems are required. Hospitals, medical centers, scientific and industrial research teams around the world make crucial decisions based upon information collected by TEAC data recorders.

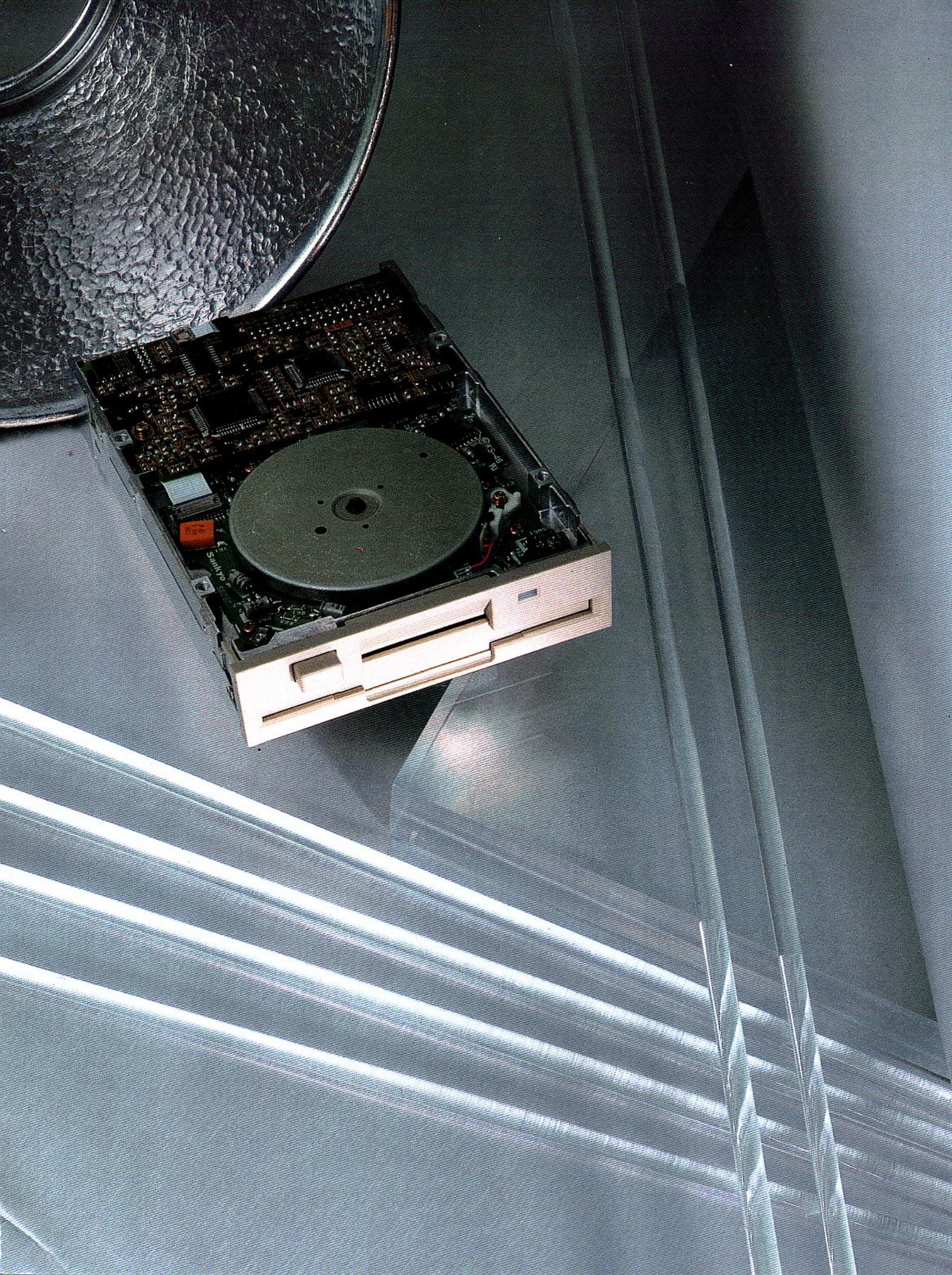
Our designers, technicians, and engineers continually investigate, refine, improve and re-invent. Our pursuit of excellence in data storage products has resulted in major improvements in head technology. Increased recording density, more stable magnetization and superior resolution has lead to vast leaps in cassette back-up capacity. Our MT-2ST/N50 Series cassette back-up

NASA depends upon TEAC airborne video and data recorders to preserve for history and science the experiments and activities on board every shuttle flight.



We design our own custom LSIs to simplify circuitry and minimize electrical components, resulting in more reliable, cost-effective products.





FD-55

SERIES 5¼-INCH FLOPPY DISK DRIVES

TEAC's incredible track record of over 15 million FD-55 Series drives working away world-wide is evidence of our quality, reliability and proven performance. In fact, we're the most used double-sided 5¼-inch floppy disk drives in the world.

But we're not willing to stop here. We're now building our fourth generation of FD-55 Series, the FD-55R. They're the most simplified, yet the most sophisticated ever.

TEAC's reputation for innovation and high performance is clearly evident in the FD-55R Series. Every aspect of design and construction is placed under demanding scrutiny and constant improvement. Large scale integration allows lower power consumption. By simplifying mechanics and electronics, precision and reliability are greatly improved.

TEAC builds four models of 5¼-inch floppy disk drives to fit a variety of applications.

Recording Method: MFM

			FD-55BR	FD-55FR	FD-55GR	FD-55GFR	
						High density	Normal density
Data Capacity (Kbyte)	Unformatted	Per track	6.25	6.25	10416	10416	6.25
		Per disk	500	1000	1604	1604	1000
	Formatted (16 sectors track)*	Per sector	0.256	0.256	0.512	0.512	0.256
		Per track	4.096	4.096	7680	7680	4.096
	Per disk	32768	65536	1182.7	1182.7 (1228.8)***	655.36	
Data transfer rate			250	250	500	500	250/300**
Innermost track bit density (bpi)			5876	5922	9646	9646 (9870)***	5922
Innermost track flux density (frpi)			5876	5922	9646	9646 (9870)***	5922
Tracks/disk			80	160	154	154 (160)***	160
Track density			48			96	
Track radius (mm)		Outermost	Side 0: 57.150 Side 1: 55.033				
		Innermost	Side 0: 36.513 Side 1: 34.396	Side 0: 36.248 Side 1: 34.131	Side 0: 37.042 Side 1: 34.925	Side 0: 37.042 (36.248)*** Side 1: 34.925 (34.131)***	Side 0: 36.248 Side 1: 34.131
Average access time (msec)			93	94	91	91 (94)***	94
Track to track time (msec)			6			3	
Settling time (msec)			10/15			15	
Rotation speed (rpm)			300		360	300/360	

SPECIFICATIONS

Recording Method: FM (single density), MFM (double density)
Motor Starting Time: 400 ms (300 rpm)
 500 ms (360 rpm)
Index: 1
MTBF: more than 10,000 hours
Error Rates: Soft Errors: 1 per 10⁹ bits (up to 2 retries)
 Hard Errors: 1 per 10¹² bits
 Seek Errors: 1 per 10⁶ seeks
Temperature: Operating: 4~46°C
 Transportation: -40~65°C
 Storage: -22~60°C
Relative Humidity: Operating: 20~80% (noncondensing)
 Max. Wet Bulb Temperature: 29°C
 Transportation: 5~95% (noncondensing)
 Max. Wet Bulb Temperature: 45°C
 Storage: 10~90% (noncondensing)
 Max. Wet Bulb Temperature: 40°C

Power Requirements: DC+12V±5% 0.22 A typ, 0.54 A max.
 DC+5V±5% 0.3A typ, 0.38 A max.
Power Consumption: Operating: 4.1 W
 Non-Operating: 1.5 W
Dimensions (W x H x D): 5¼" x 1½" x 8"
 (146 x 41.3 x 203 mm)
Weight: 2.4 lbs (1.1 kg)
Component Life: 5 years
Safety Standard: Complies with UL and CSA

*FD-55GR/FD-55GFR (high density) is for 15 sectors/track

**Left side is 300 rpm, right side is 360 rpm

***For 160 tracks

TEAC builds four models of 5¼-inch floppy disk drives to fit a variety of applications.*

Recording Method: MFM

			FD-55BR	FD-55FR	FD-55GR	FD-55GFR	
						High density	Normal density
Data Capacity (Kbyte)	Unformatted	Per track	6.25	6.25	10.416	10.416	6.25
		Per disk	500	1000	1604	1604	1000
	Formatted (16 sectors track)*	Per sector	0.256	0.256	0.512	0.512	0.256
		Per track	4.096	4.096	7.680	7.680	4.096
		Per disk	327.68	655.36	1182.7	1182.7 (1228.8)***	655.36
Data transfer rate			250	250	500	500	250/300**
Innermost track bit density (bpi)			5876	5922	9646	9646 (9870)***	5922
Innermost track flux density (frpi)			5876	5922	9646	9646 (9870)***	5922
Tracks/disk			80	160	154	154 (160)***	160
Track density			48	96			
Track radius (mm)		Outermost	Side 0: 57.150 Side 1: 55.033				
		Innermost	Side 0: 36.513 Side 1: 34.396	Side 0: 36.248 Side 1: 34.131	Side 0: 37.042 Side 1: 34.925	Side 0: 37.042 (36.248)*** Side 1: 34.925 (34.131)***	Side 0: 36.248 Side 1: 34.131
Average access time (msec)			93	94	91	91 (94)***	94
Track to track time (msec)			6	3			
Settling time (msec)			10/15	15			
Rotation speed (rpm)			300		360	300/360	

* as of 1993 when this chart was published.