

SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549



FORM 11-K

ANNUAL REPORT

Pursuant to Section 15(d) of the
Securities Exchange Act of 1934



X Annual Report Pursuant to Section 15(d) of the
Securities Exchange Act of 1934

For the fiscal year ended December 31, 2003

or

Transition Report Pursuant to Section 15(d) of the
Securities Exchange Act of 1934

For the transition period from _____ to _____
Commission file number _____

PROCESSED

JUL 02 2004

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FINANCIAL

MILACRON INC.
RETIREMENT SAVINGS PLAN
(full title of the plan)

MILACRON INC.
(Name of issuer)

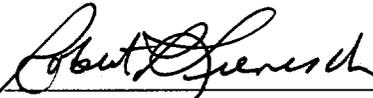
2090 Florence Avenue
Cincinnati, Ohio 45206
(Address and principal executive office)

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Milacron Inc. Benefit Plans Committee has duly caused this annual report to be signed by the undersigned thereunto duly authorized.

MILACRON RETIREMENT SAVINGS PLAN

Date: June 24, 2004

By:  _____

Robert P. Lienesch
Vice President - Finance
and Chief Financial Officer
and Member of the
Milacron Inc. Benefit Plans
Committee

Financial Statements and Report of Independent Registered Public Accounting Firm

Milacron Retirement Savings Plan

December 31, 2003 and 2002

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REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Milacron Benefit Plans Committee

We have audited the accompanying statements of net assets available for benefits of Milacron Retirement Savings Plan (the Plan) as of December 31, 2003 and 2002, and the related statement of changes in net assets available for benefits for the year ended December 31, 2003. These financial statements are the responsibility of the Plan's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the net assets available for benefits of the Plan as of December 31, 2003 and 2002, and the changes in net assets available for benefits for the year ended December 31, 2003, in conformity with accounting principles generally accepted in the United States of America.

Our audits were conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplemental schedule of assets held for investment purposes is presented for purposes of additional analysis and is not a required part of the basic financial statements, but is supplementary information required by the Department of Labor's Rules and Regulations for Reporting and Disclosure under the Employee Retirement Income Security Act of 1974. This supplemental schedule has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

Grant Thornton LLP

Cincinnati, Ohio
June 11, 2004

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Milacron Retirement Savings Plan

STATEMENTS OF NET ASSETS AVAILABLE FOR BENEFITS

December 31, 2003 and 2002

ASSETS	2003	2002
Investments (Note D)	\$ 172,220,446	\$ 165,799,518
Contributions receivable:		
Participants	294,565	496,832
Employer	577,690	553,857
	<u>872,255</u>	<u>1,050,689</u>
Net assets available for benefits	<u>\$ 173,092,701</u>	<u>\$ 166,850,207</u>

The accompanying notes are an integral part of these financial statements.

Milacron Retirement Savings Plan

STATEMENT OF CHANGES IN NET ASSETS AVAILABLE FOR BENEFITS

Year Ended December 31, 2003

Additions to net assets attributed to:

Contributions:

Participants	\$	7,212,292
Employer		2,225,282
Employer - noncash (treasury shares)		956,475
Rollovers		39,841
		<u>10,433,890</u>

Investment income:

Net appreciation in fair value of investments (Note D)		22,164,600
Interest and dividends		2,140,006
Total additions		<u>34,738,496</u>

Deductions from net assets attributed to:

Benefit payments and withdrawals		28,492,601
Administrative expenses		3,401
Total deductions		<u>28,496,002</u>

Net increase 6,242,494

Net assets available for benefits at:

Beginning of year		<u>166,850,207</u>
End of year	\$	<u><u>173,092,701</u></u>

The accompanying notes are an integral part of this financial statement.

Milacron Retirement Savings Plan

NOTES TO FINANCIAL STATEMENTS

December 31, 2003 and 2002

NOTE A – DESCRIPTION OF PLAN

The following description of the Milacron Retirement Savings Plan (the Plan) provides only general information. Participants should refer to the Summary Plan Description for a more complete description of the Plan's provisions.

1. General

The Plan is a defined contribution plan sponsored by Milacron Inc. (the Company and Plan Sponsor) and covers all eligible employees of Milacron Inc. and other affiliated companies as designated by the Board of Directors. The Plan is subject to the provisions of the Employee Retirement Income Security Act of 1974 (ERISA).

2. Contributions

Participants may make pre-tax and post-tax compensation contributions of up to such percentages as specified by the Plan document. The pre-tax contributions may not exceed the maximum allowable deferral as defined by the Internal Revenue Code.

The Plan Sponsor makes quarterly contributions to the Plan, which vary by affiliated company participation. The quarterly contributions are defined by the supplements to the plan document. The Plan Sponsor also may make a matching contribution equal to the lesser of a specified percentage of each participant's eligible compensation or 50% of the amount of the participant's salary deferral contribution, with the exception of Pliers employees, Talbot bargaining employees, and Northern Supply employees. Plan Sponsor match contributions to the Plan are directed by the Plan Sponsor and its investment policy. They are generally made in Company stock and restricted as to participant-direction based on a vesting schedule (see Note A-5).

3. Rollover Contributions

Participants may contribute amounts representing distributions from other qualified defined benefit or defined contribution plans, provided the rollover contribution is received by the Plan on or before the sixtieth day immediately following the participant's receipt of the rollover amount.

4. Participant Accounts

Each participant's account is credited with the participant's contributions and allocations of (a) the Company's contributions and (b) Plan earnings. Allocations are based on participant earnings or account balances, as defined. Forfeitures are first applied against restorals and then against Company contributions made by the Plan Sponsor. The benefit to which a participant is entitled is the benefit that can be provided from the participant's account.

5. Vesting

Participants are vested immediately in their own contributions plus actual earnings thereon. Amounts in a participant's account attributable to Plan Sponsor contributions are fully vested after five years of service. Effective January 1, 2002, Plan sponsor match contributions will become fully vested after three years of service. A participant also becomes fully vested upon total or permanent disability, upon attainment of age 65 or upon death before retirement. Amounts not vested will be forfeited upon termination of employment. The Plan Sponsor may use forfeitures to offset future employer contributions.

Milacron Retirement Savings Plan

NOTES TO FINANCIAL STATEMENTS (CONTINUED)

December 31, 2003 and 2002

NOTE A – DESCRIPTION OF PLAN (continued)

6. Participant Loans

Participants may borrow from their accounts a minimum of \$1,000 up to a maximum of the lesser of \$50,000 or 50% of their account balance, excluding Voluntary and Company Matching Contributions. The loans are secured by the balance in the participant's account and bear interest at a rate commensurate with local prevailing rates as determined quarterly by the Plan administrator. Principal and interest is paid ratably through payroll deductions and is credited to each participant's account balance.

7. Payment of Benefits

Upon termination of service, a participant may receive a lump-sum amount equal to the vested value of the participant's account, defer their distribution, establish a distribution schedule, or may direct Putnam Fiduciary Trust Company, the trustee, to transfer payment directly into an IRA or another employer's qualified plan. Upon death, accounts are fully vested and the entire account value is distributed to the participant's beneficiary(ies).

8. Administrative Expenses

Through March 31, 2003, the Plan Sponsor paid all expenses of administering the Plan, except for administrative services for loan, in-service withdrawals and termination distributions, which are accordingly charged to participants' accounts. Effective April 1, 2003, the Plan Sponsor pays all expenses of administering the plan.

NOTE B – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

1. Use of Estimates

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America requires the Plan's management to make estimates and assumptions that affect the reported amounts of assets and liabilities and changes therein, and disclosure of contingent assets and liabilities. Actual amounts could differ from those estimates.

2. Investment Valuations and Income Recognition

Investments are presented at fair value. Securities traded on a national securities exchange are valued at the last reported sales price on the last business day of the plan year. Securities representing shares of registered investment companies are valued at quoted market prices, which represent the net asset values of shares held at year-end. The participant loans are valued at their outstanding balances which approximate fair value. Dividend income is accumulated and reinvested in the fund and included in the determination of net asset values.

3. Payment of Benefits

Benefits are recorded when paid.

Milacron Retirement Savings Plan

NOTES TO FINANCIAL STATEMENTS (CONTINUED)

December 31, 2003 and 2002

NOTE C – RELATED PARTY TRANSACTIONS

During the year ended December 31, 2003, the Plan purchased, transferred, and sold or distributed to terminated participants shares of Milacron Inc. common stock, and received dividends on shares of Milacron Inc. common stock as follows:

Number of shares purchased	1,071,480
Cost	\$3,875,957
Average cost per share	\$3.62
Number of shares sold or distributed	857,562
Proceeds	\$3,316,924
Average proceeds per share	\$3.87
Dividends	\$39,760

NOTE D – INVESTMENTS

The current value of individual investments that represent 5% or more of the Plan's net assets available for benefits at December 31 are as follows:

	2003	2002
Milacron Inc. Common Stock*	\$ 9,025,603	\$11,605,444
Putnam Money Market Fund	15,987,134	19,724,299
The Putnam Fund for Growth and Income	***	30,448,632
Putnam Global Equity Fund	***	10,337,113
Putnam Voyager Fund	50,748,320	34,327,609
Putnam US Government Income Trust	***	19,555,527
Putnam New Opportunities Fund	***	12,998,946
Putnam Bond Index Fund	12,320,136	***
Washington Mutual Investors R4 Fund	35,146,994	***
Putnam International Equity Fund	14,597,713	***

*Includes nonparticipant-directed investment of \$1,251,095 and \$2,124,397 as of December 31, 2003 and 2002, respectively.

***Investment represents less than 5% of the Plan's net assets at the specified date.

During 2003, the Plan's investments (including investments purchased, sold as well as held during the year) appreciated (depreciated) in fair value as determined by quoted market prices as follows:

Shares of registered investment companies	\$25,303,474
Milacron Inc. Common Stock	<u>(3,138,874)</u>
	<u>\$22,164,600</u>

Milacron Retirement Savings Plan

NOTES TO FINANCIAL STATEMENTS (CONTINUED)

December 31, 2003 and 2002

NOTE E – NONPARTICIPANT-DIRECTED INVESTMENTS

Information about the net assets and the significant components of the changes in net assets relating to the nonparticipant-directed investments as of December 31 is as follows:

Assets	2003	2002
Investments:		
Milacron Inc. Common Stock	<u>\$1,251,095</u>	<u>\$2,124,397</u>
		Year ended December 31, 2003
Change in net assets:		
Employer contributions		\$ 690,657
Dividends		7,107
Net depreciation in the fair value of Milacron Inc. Common Stock		(578,504)
Benefit payments		(165,768)
Transfer out of restricted assets		<u>(826,794)</u>
		<u>\$(873,302)</u>

Participants age 50 or older have the opportunity to transfer vested portions of restricted investments to non-restricted investments. Effective January 1, 2002, as soon as administratively feasible on or after January 1 of each Plan year, 25% of each participant's restricted investments may be transferred to non-restricted investments.

NOTE F – PLAN TERMINATION

Although it has not expressed any intent to do so, the Company has the right under the Plan to discontinue its contributions at any time and to terminate the Plan subject to the provisions of ERISA. In the event of Plan termination, participants will be 100 percent vested in their employer and employee contributions.

NOTE G – TAX STATUS

The Plan received a determination letter from the Internal Revenue Service dated November 19, 1996, stating that the Plan is qualified under Section 401(a) of the Internal Revenue Code (the Code) and, therefore, the related trust is exempt from taxation. The Plan was subsequently amended and restated. Once qualified, the Plan is required to operate in conformity with the Code to maintain its qualification. Subsequent to December 31, 2003, a new determination letter dated February 2, 2004, was received. The Plan Sponsor believes the Plan, as amended and restated, is being operated in compliance with the applicable requirements of the Code and, therefore, believes that the Plan is qualified and the related trust is tax exempt.

Milacron Retirement Savings Plan

NOTES TO FINANCIAL STATEMENTS (CONTINUED)

December 31, 2003 and 2002

NOTE H – RECONCILIATION OF FINANCIAL STATEMENTS TO FORM 5500

The following is a reconciliation of net assets available for benefits per the financial statements to the Form 5500 as of December 31:

	2003	2002
Net assets available for benefits per the financial statements	\$173,092,701	\$166,850,207
Employee contribution receivable	(294,565)	(412,943)
Participant loans	<u>(83,713)</u>	<u>(176,026)</u>
Net assets available for benefits per the Form 5500	<u>\$172,714,423</u>	<u>\$166,261,238</u>

	2003
Net increase in net assets available for benefits per the financial statements	\$6,242,494
Employee contributions	118,378
Benefit payments and withdrawals	<u>92,313</u>
Net increase in net assets available for benefits per the Form 5500	<u>\$6,453,185</u>

NOTE I – SUBSEQUENT EVENTS

On March 1, 2004, the Plan was amended to disallow employee contributions to the Milacron Inc. common stock fund. Subsequently, the Plan was amended effective July 1, 2004 to allow employee contributions to the Milacron Inc. common stock fund and restricting these contributions to 25% of the employee's investment allocation.

On April 30, 2004, the Company sold the grinding wheel business. These employees were fully vested in their employer contributions effective on the sale date.

SUPPLEMENTAL INFORMATION

Milacron Retirement Savings Plan
Form 5500 E.I.N. 31-1062125
Plan No. 008

LINE 4i - SCHEDULE OF ASSETS HELD FOR INVESTMENT PURPOSES

December 31, 2003

(a)	(b)	(c)	(d)
Identity of issuer, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost	Current value
<u>Shares of registered investment companies</u>			
* Putnam Money Market Fund	15,987,134 shares	**	\$ 15,987,134
* Putnam Bond Index Fund	912,603 shares	**	12,320,136
* Putnam Money Market Fund-SDB	19,683 shares	**	19,683
* S&P 500 Fund	131,486 shares	**	3,652,671
* Putnam Voyager Fund	3,200,318 shares	**	50,725,032
* Putnam International Equity Fund	706,569 shares	**	14,597,713
Washington Mutual Investors R4 Fund	1,223,355 shares	**	35,146,994
Dodge & Cox Balanced Fund	64,449 shares	**	4,707,335
One Group Midcap Growth Fund	99,491 shares	**	2,059,461
Lord Abbett Midcap Value Fund	185,451 shares	**	3,492,042
AIM Smallcap Growth Fund	159,889 shares	**	4,110,745
PIMCO Total Return Fund	611,813 shares	**	6,552,517
Neuberger Berman Genesis Trust	150,476 shares	**	5,572,144
Buffalo High-Yield Fund	913 shares	**	10,139
Fidelity Contrafund	103 shares	**	5,087
Heartland Value Fund	158 shares	**	8,092
Oberweis Emerging Growth Fund	270 shares	**	7,313
Rydex Dynamic Tempest 500 H Fund	306 shares	**	16,129
Rydex Dynamic Venture 100 H Fund	733 shares	**	19,492
RS Contrarian Value Fund	559 shares	**	9,523
RS Information Age Fund	198 shares	**	2,949
U.S. Global Investors China Region Opportunity Fund	589 shares	**	3,864
			159,026,195
<u>Common Stock</u>			
* Milacron Inc. common stock	2,164,413 shares	\$ 27,673,544	9,025,603
Adams Express Company common stock	200 shares	**	2,482
The AES Corporation common stock	100 shares	**	944
API Electronics Group Inc. common stock	1,500 shares	**	945
AT&T Wireless Services Inc. common stock	250 shares	**	1,998
Autobyte Inc. common stock	200 shares	**	1,816
Automatic Data Processing, Inc. common stock	100 shares	**	3,961
Charter Communications, Inc. common stock	200 shares	**	804
Chesapeake Utilities Corporation common stock	500 shares	**	13,025
Conexant Systems, Inc. common stock	450 shares	**	2,237
Con Space Communications Ltd. common stock	17,500 shares	**	8,103

Milacron Retirement Savings Plan
Form 5500 E.I.N. 31-1062125
Plan No. 008

LINE 4i - SCHEDULE OF ASSETS HELD FOR INVESTMENT PURPOSES

December 31, 2003

(a)	(b)	(c)	(d)
Identity of issuer, borrower, lessor, or similar party	Description of investment including maturity date, rate of interest, collateral, par or maturity value	Cost	Current value
<u>Common Stock (continued)</u>			
Dynegey Inc. common stock	300 shares	**	1,284
E*Trade Group Inc. common stock	200 shares	**	2,530
El Paso Corporation common stock	100 shares	**	819
Eldorado Gold Corp. common stock	300 shares	**	963
Enterprise Products Partners L.P. common stock	100 shares	**	2,455
Geron Corporation common stock	4,800 shares	**	49,206
Gold Fields Ltd. american depository receipts	200 shares	**	2,788
Goldcorp Inc. common stock	200 shares	**	3,190
Human Genome Sciences Inc. common stock	62 shares	**	822
Huntington Bancshares Incorporated common stock	100 shares	**	2,250
Intel Corporation common stock	200 shares	**	6,440
Ivanhoe Energy Inc. common stock	500 shares	**	1,870
J.P. Morgan Chase & Co. common stock	100 shares	**	3,673
Kinross Gold Corporation common stock	210 shares	**	1,678
Limited Brands Inc. common stock	100 shares	**	1,803
Lucent Technologies Inc. common stock	1,200 shares	**	3,408
NASDAQ-100 Index tracking stock	200 shares	**	7,292
Nextel Communications, Inc. common stock	84 shares	**	2,357
Nordic American Tanker Shipping Limited common stock	200 shares	**	3,010
Schering-Plough Corporation common stock	200 shares	**	3,478
Semiconductor HOLDERS Trust depository receipts	100 shares	**	4,149
Standard & Poors depository receipts	100 shares	**	11,128
Sturm, Ruger & Company, Inc. common stock	100 shares	**	1,137
Teton Petroleum Company common stock	200 shares	**	996
Wheaton River Minerals Ltd. common stock	3,400 shares	**	10,166
Zoran Corporation common stock	100 shares	**	1,739
			<u>9,192,549</u>
Participant Loans	Interest rate 4 - 11%		<u>3,978,414</u>
Cash			<u>23,288</u>
			\$ 172,220,446

* Denotes a party-in-interest

** Cost of asset is not required to be disclosed as investment is participant-directed.

The following Exhibit is included with this Form 11-K:

<u>Exhibit Number</u>	<u>Description of Exhibit</u>
23	Consent of Independent Auditors

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our report dated June 11, 2004, accompanying the financial statements and supplementary schedule included in the Annual Report of the Milacron Retirement Savings Plan on Form 11-K for the year ended December 31, 2003. We hereby consent to the incorporation by reference of said report in the Registration Statement of Milacron Retirement Savings Plan on Form S-8 (No. 333-115949).

Grant Thornton LLP

Cincinnati, Ohio
June 11, 2004