

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

SCHEDULE 13G

Under the Securities Exchange Act of 1934

(Amendment No. 6)*

Kennametal, Inc.

(Name of Issuer)

Common

(Title of Class of Securities)

489170100

(CUSIP Number)

*The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter the disclosures provided in a prior page.

The information required in the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

(Continued on following page(s))

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Schedule 13G

CUSIP No. 489170100

1 NAME OF REPORTING PERSON:
S.S. or I.R.S. IDENTIFICATION NO. OF ABOVE PERSON
PRIMECAP Management Company **95-3868081**

2 CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP* (a)
(b)

3 SEC USE ONLY

4 CITIZENSHIP OR PLACE OF ORGANIZATION
225 South Lake Avenue #400, Pasadena, CA 91101-3005

NUMBER OF 5 SOLE VOTING POWER **433,690**
SHARES

BENEFICIALLY 6 SHARED VOTING POWER **-0-**
OWNED BY EACH

REPORTING 7 SOLE DISPOSITIVE POWER **1,833,690**
PERSON WITH

8 SHARED DISPOSITIVE POWER **-0-**

9 AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON
1,833,690

11 PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
5.22%

12 TYPE OF REPORTING PERSON*
IA

***SEE INSTRUCTIONS BEFORE FILLING OUT!**

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ITEM 4. OWNERSHIP

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

(a) Amount beneficially owned:

(b) Percent of class:

(c) Number of shares as to which the person has:

(i) sole power to vote or to direct the vote

(ii) shared power to vote or to direct the vote

(iii) sole power to dispose or to direct the disposition of

(iv) shared power to dispose or to direct the disposition of

Instruction: For computations regarding securities which represent a right to acquire an underlying security see Rule 13d-3(d)(1).

ITEM 5. OWNERSHIP OF FIVE PERCENT OR LESS OF A CLASS

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following.

Instruction: Dissolution of a group requires a response to this item.

ITEM 6. OWNERSHIP OF MORE THAN FIVE PERCENT ON BEHALF OF ANOTHER PERSON

If any other person is known to have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, such securities, a statement to that effect should be included in response to this item and, if such interest relates to more than five percent of the class, such person should be identified. A listing of the shareholders of an investment company registered under the Investment Company Act of 1940 or the beneficiaries of employee benefit plan, pension fund or endowment fund is not required.

ITEM 7. IDENTIFICATION AND CLASSIFICATION OF THE SUBSIDIARY WHICH ACQUIRED THE SECURITY BEING REPORTED ON BY THE PARENT HOLDING COMPANY

If a parent holding company has filed this schedule, pursuant to Rule 13d-1(b)(ii)(G), so indicate under Item 3(g) and attach an exhibit stating the identity and the Item 3 classification of the relevant subsidiary. If a parent holding company has filed this schedule pursuant to Rule 13d-1(c), attach an exhibit stating the

ITEM 8. IDENTIFICATION AND CLASSIFICATION OF MEMBERS OF THE GROUP

If a group has filed this schedule pursuant to Rule 13d-1(b)(ii)(H), so indicate under Item 3(h) and attach an exhibit stating the identity and Item 3 classification of each member of the group. If a group has filed this schedule pursuant to Rule 13d-1(c), attach an exhibit stating the identity of each member of the group.

ITEM 9. NOTICE OF DISSOLUTION OF GROUP

Notice of dissolution of a group may be furnished as an exhibit stating the date of the dissolution and that all further filings with respect to transactions in the security reported on will be filed, if required, by members of the group, in their individual capacity. See Item 5.

ITEM 10. CERTIFICATION

The following certification shall be included if the statement is filed pursuant to Rule 13d-1(b):

By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired in the ordinary course of business and were not acquired for the purpose of and do not have the effect of changing or influencing the control of the issuer of such securities and were not acquired in connection with or as a participant in any transaction having such purposes or effect.

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

November 30, 2002

Date

/s/ THEO A. KOLOKOTRONES

Signature

Theo A. Kolokotronis, President

Name/Title

QuickLinks

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