

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

OMB APPROVAL	
OMB Number:	3235-0104
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Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

1. Name and Address of Reporting Person* <u>Carlyle Group Inc.</u>  (Last) (First) (Middle) C/O THE CARLYLE GROUP INC. 1001 PENNSYLVANIA AVE. NW, SUITE 220S  (Street) WASHINGTON DC 20004-2505  (City) (State) (Zip)	2. Date of Event Requiring Statement (Month/Day/Year) 08/17/2022	3. Issuer Name and Ticker or Trading Symbol <u>MKS INSTRUMENTS INC [ MKSI ]</u>	
		4. Relationship of Reporting Person(s) to Issuer (Check all applicable)  Director <input checked="" type="checkbox"/> 10% Owner  Officer (give title below) Other (specify below)	5. If Amendment, Date of Original Filed (Month/Day/Year)  6. Individual or Joint/Group Filing (Check Applicable Line) Form filed by One Reporting Person <input checked="" type="checkbox"/> Form filed by More than One Reporting Person

**Table I - Non-Derivative Securities Beneficially Owned**

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
Common Stock	8,482,732	I	See footnotes <sup>(1)(2)(3)(4)</sup>

**Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)		4. Conversion or Exercise Price of Derivative Security	5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date	Title	Amount or Number of Shares			

1. Name and Address of Reporting Person\*  
Carlyle Group Inc.  
 (Last) (First) (Middle)  
 C/O THE CARLYLE GROUP INC.  
 1001 PENNSYLVANIA AVE. NW, SUITE 220S  
 (Street)  
 WASHINGTON DC 20004-2505  
 (City) (State) (Zip)

1. Name and Address of Reporting Person\*  
Carlyle Holdings II GP L.L.C.  
 (Last) (First) (Middle)  
 C/O THE CARLYLE GROUP  
 1001 PENNSYLVANIA AVE. NW, SUITE 220S  
 (Street)  
 WASHINGTON DC 20004-2505  
 (City) (State) (Zip)

1. Name and Address of Reporting Person\*

Carlyle Holdings II L.L.C.

(Last) (First) (Middle)

C/O THE CARLYLE GROUP  
1001 PENNSYLVANIA AVE. NW, SUITE 220S

(Street)

WASHINGTON DC 20004-2505

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

CG Subsidiary Holdings L.L.C.

(Last) (First) (Middle)

C/O THE CARLYLE GROUP  
1001 PENNSYLVANIA AVE. NW, SUITE 220S

(Street)

WASHINGTON DC 20004-2505

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

TC Group Cayman Investment Holdings,  
L.P.

(Last) (First) (Middle)

C/O THE CARLYLE GROUP  
1001 PENNSYLVANIA AVE. NW, SUITE 220S

(Street)

WASHINGTON DC 20004-2505

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

TC Group Cayman Investment Holdings  
Sub L.P.

(Last) (First) (Middle)

C/O THE CARLYLE GROUP  
1001 PENNSYLVANIA AVE. NW, SUITE 220S

(Street)

WASHINGTON DC 20004-2505

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

TC Group VI Cayman, L.L.C.

(Last) (First) (Middle)

C/O THE CARLYLE GROUP  
1001 PENNSYLVANIA AVE. NW, SUITE 220S

(Street)

WASHINGTON DC 20004-2505

(City) (State) (Zip)

1. Name and Address of Reporting Person\*

TC Group VI Cayman, L.P.

(Last) (First) (Middle)

C/O THE CARLYLE GROUP  
1001 PENNSYLVANIA AVE. NW, SUITE 220S

(Street)

WASHINGTON DC 20004-2505

(City) (State) (Zip)

**Explanation of Responses:**

1. Includes 5,180,030 shares held by Carlyle Partners VI Cayman Holdings, L.P., 2,259,743 shares held by CEP IV Participations, S.a r.l. SICAR and 1,042,959 shares held by Gamma Holding Company Limited.

2. The Carlyle Group Inc., which is a publicly traded entity listed on Nasdaq, is the sole member of Carlyle Holdings II GP L.L.C., which is the managing member of Carlyle Holdings II L.L.C., which, with respect to the securities reported herein, is the managing member of CG Subsidiary Holdings L.L.C., which is the general partner of TC Group Cayman Investment Holdings, L.P., which is the general partner of TC Group Cayman Investment Holdings Sub L.P., which is the sole shareholder of TC Group VI Cayman, L.L.C., which is the general partner of TC Group VI Cayman, L.P., which is the general partner of Carlyle Partners VI Cayman Holdings, L.P.

3. TC Group Cayman Investment Holdings Sub L.P. is also the sole shareholder of CEP IV Managing GP Holdings, Ltd. and the sole member of CAP IV, L.L.C. CEP IV Managing GP Holdings, Ltd. is the general partner of CEP IV Managing GP, L.P., which is the managing general partner of Carlyle Europe Partners IV, L.P., which is the majority shareholder of CEP IV Participations, S.a r.l. SICAR. CAP IV, L.L.C. is the general partner of CAP IV General Partner, L.P., which is the general partner of Carlyle Asia Partners IV, L.P., which is the majority shareholder of Gamma Holding Company Limited.

4. Accordingly, each of these entities may be deemed to share beneficial ownership of the securities held of record by Carlyle Partners VI Cayman Holdings, L.P., CEP IV Participations, S.a r.l. SICAR and Gamma Holding Company Limited. Each of them disclaims beneficial ownership of such securities.

**Remarks:**

Exhibit 24 - Power of Attorney. Due to the limitations of the electronic filing system, each of Carlyle Partners VI Cayman Holdings, L.P., CEP IV Managing GP Holdings, Ltd., CEP IV Managing GP, L.P., Carlyle Europe Partners IV, L.P., CEP IV Participations, S.a r.l. SICAR, CAP IV, L.L.C., CAP IV General Partner, L.P., Carlyle Asia Partners IV, L.P. and Gamma Holding Company Limited are filing a separate Form 3.

The Carlyle Group Inc.,  
By: /s/ Anne Frederick,  
Attorney-in-fact for Curtis L. Buser, Chief Financial  
Officer 08/29/2022

Carlyle Holdings II GP  
L.L.C., By: The Carlyle  
Group Inc., its sole  
member, By: /s/ Anne 08/29/2022  
Frederick, Attorney-in-fact  
for Curtis L. Buser, Chief  
Financial Officer

Carlyle Holdings II L.L.C.,  
By: /s/ Anne Frederick,  
Attorney-in-fact for Curtis 08/29/2022  
L. Buser, Managing  
Director

CG Subsidiary Holdings  
L.L.C., By: /s/ Anne  
Frederick, Attorney-in-fact 08/29/2022  
for Curtis L. Buser,  
Managing Director

TC Group Cayman  
Investment Holdings, L.P.,  
By: CG Subsidiary  
Holdings L.L.C., its 08/29/2022  
general partner, By: /s/  
Anne Frederick, Attorney-  
in-fact for Curtis L. Buser,  
Managing Director

TC Group Cayman 08/29/2022  
Investment Holdings Sub  
L.P., By: TC Group  
Cayman Investment  
Holdings, L.P., its general  
partner, By: CG Subsidiary,  
Holdings L.L.C., its  
general partner, By: /s/  
Anne Frederick, Attorney-

in-fact for Curtis L. Buser,  
Managing Director  
TC Group VI Cayman,  
L.L.C., By: /s/ Jeremy W. 08/29/2022  
Anderson, Authorized  
Person

TC Group VI Cayman,  
L.P., By: TC Group VI  
Cayman L.L.C., its general 08/29/2022  
partner, By: /s/ Jeremy W.  
Anderson, Authorized  
Person

\*\* Signature of Reporting Person                      Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 5 (b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.**

## POWER OF ATTORNEY

The undersigned understands that, from time to time, the Carlyle Companies (defined below) are required to prepare, execute, and file certain federal and state securities laws filings.

Know all by these presents, that the undersigned hereby constitutes and appoints each of Jeffrey Ferguson, Jeremy Anderson, Chintan Bhatt, Anne Frederick, Kevin Gasque, Erica Herberg, Anat Holtzman, Joshua Lefkowitz, David Lobe, Elizabeth Muscarella, Sanket Patel, Robert Rosen, and Catherine Ziobro, or any of them signing singly, and with full power of substitution, the undersigned's true and lawful attorney-in-fact to:

- (1) prepare, execute in the name of each Carlyle Company and on behalf of each Carlyle Company, and submit to the U.S. Securities and Exchange Commission (the "SEC") a Form ID, including amendments thereto, and any other documents necessary or appropriate to obtain codes and passwords enabling the undersigned to make electronic filings with the SEC of Forms D ("Form D") required to be filed in accordance with Rule 503 ("Rule 503") promulgated with respect to Sections 4(2), 4(6) and 3(b) of the Securities Act of 1933, as amended (the "1933 Act") and reports required by Sections 13(d) and 16(a) of the Securities Exchange Act of 1934, as amended (the "1934 Act") or any rule or regulation of the SEC;
- (2) prepare and execute for and on behalf of each Carlyle Company, in the undersigned's capacity as a Chairman, authorized person, officer and/or director of each Carlyle Company, federal and state securities laws filings including without limitation Forms D pursuant to Rule 503 and Schedules 13D and 13G and Forms 3, 4, and 5 in accordance with Sections 13(d) and 16(a) of the 1934 Act and the rules thereunder;
- (3) do and perform any and all acts for and on behalf of each Carlyle Company that may be necessary or desirable to complete and execute any such federal and state securities laws filings including without limitation Forms D, Schedules 13D and 13G and Forms 3, 4, and 5, complete and execute any amendment or amendments thereto, and timely file such form with the SEC and the securities administrators of any state, the District of Columbia, the Commonwealth of Puerto Rico, Guam and the United States Virgin Islands or their designees and any stock exchange or similar authority; and
- (4) take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required by, the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact's discretion.

The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform any and every act and thing whatsoever requisite, necessary, or proper to be done in the exercise of any of the rights and powers herein granted, as fully to all intents and purposes as the undersigned might or could do if personally present, with full power of substitution or revocation, hereby ratifying and confirming all that such attorney-in-fact, or such attorney-in-fact's substitute or substitutes, shall lawfully do or cause to be done by virtue of this power of attorney and the rights and powers herein granted, whether the same needs to be executed, taken or done by him in his capacity as a current or former member, partner, shareholder, director or officer of any company, partnership, corporation, organization, firm, branch or other entity connected with, related to or affiliated with any of the entities constituting the Carlyle Companies or entities that directly or indirectly hold interests in the Carlyle Companies.

The undersigned acknowledges that the foregoing attorneys-in-fact, in serving in such capacity at the request of the undersigned, are not assuming any of the undersigned's responsibilities to comply with federal and state securities laws, including without limitation Rule 503 of the 1933 Act

or Section 13 and Section 16 of the 1934 Act.

This Power of Attorney and all authority conferred hereby shall not be terminated by operation of law, whether by the death or incapacity of the undersigned or by occurrence of any other event. Actions taken by an attorney-in-fact pursuant to this Power of Attorney shall be as valid as if any event described in the preceding sentence had not occurred, whether or not the attorney-in-fact shall have received notice of such event. Notwithstanding the foregoing, (i) in the event that an attorney-in-fact is no longer employed by The Carlyle Group Employee Co., L.L.C. or its affiliates, this Power of Attorney and all authority conferred hereby shall be immediately terminated with respect to such Attorney, and (ii) the undersigned may terminate or revoke this Power of Attorney at any time.

For purposes hereof, the "Carlyle Companies" shall consist of: (i) Carlyle Group Management L.L.C., The Carlyle Group Inc., Carlyle Holdings I GP Inc., Carlyle Holdings I GP Sub L.L.C., Carlyle Holdings I L.P., TC Group, L.L.C., Carlyle Holdings II GP L.L.C., Carlyle Holdings II L.L.C., CG Subsidiary Holdings L.L.C., TC Group Investment Holdings Limited Partner L.L.C., TC Group Investment Holdings, L.P., Carlyle Holdings III GP L.P., Carlyle Holdings III GP Sub L.L.C., Carlyle Holdings III L.P., TC Group Cayman L.P., TC Group Sub L.P., TC Group Investment Holdings Sub L.P., TC Group Cayman Investment Holdings, L.P., TC Group Cayman Investment Holdings Sub L.P., TC Group Cayman, L.P., TC Group Cayman Sub L.P., Five Overseas CG Investment L.L.C. and (ii) the subsidiaries and affiliates of the foregoing in clause (i), including without limitation investment funds sponsored directly or indirectly by one or more of the Carlyle Companies.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed as of this 5th day of August, 2022.

By: /s/ Curtis L. Buser

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Name: Curtis L. Buser  
Title: Chief Financial Officer