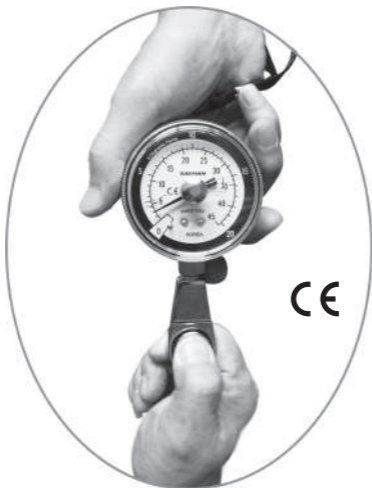


SAEHAN **Hydraulic Pinch Gauge(SH5005)**

Instruction / Operator's Manual



Grip SAEHAN®
www.saehanmedical.com

SAEHAN Hydraulic Pinch Gauge (SH5005)

The SAEHAN Hydraulic Pinch Gauge is used for hand-strength testing by measuring tip, key and palmar pinch.

The Pinch Gauge can be used as a diagnostic tool, or for monitoring the progress of rehabilitation.

Pinch force is measured in pounds and kilograms (45 lbs or 20kg. Maximum reading) on a dual scale. It is held by the therapist, not the patient.

The patient should apply pressure the pinch block with the finger pads or finger tips. Pressing the pinch button with the thumb causes the force reading to appear on the gauge.

The position of the upper extremities can significantly affect pinch-strength measurement. The American Society of Hand Therapists recommends the following testing position :

1. Patient should be seated.
2. Shoulders should be adducted and neutrally rotated.
3. Elbow should be flexed at 90 degrees.
4. Forearm and wrist should be in a neutral position.
5. Tolerance of degree is $\pm 2\%$
6. When you dispose of this unit, it may leak oil.

Pinch Styles

1. Tip Pinch -- thumb tip to index fingertip.
2. Key Pinch -- thumb pad to lateral aspect of middle phalanx of index finger.
3. Palmar Pinch -- thumb pad to pads of index and middle fingers.

Limited Two-Year Warranty

SAEHAN warrants this Hydraulic Pinch Gauge to be free from defects in workmanship and materials for two years from the date of purchase.

If this instrument is found to be defective during the two-year period, SAEHAN will repair or replace it, at its discretion.

Thereafter, if a defect occurs, there will be a service charge for repairs.

This warranty gives you specific legal rights, You may also have other rights, which vary from state to state.

TRANSPORTATION & STORAGE CONDITION : Environment

1. General :













- It is not aimed to be used in households.
- It is used in physical therapy rooms, doctors' offices and patients' rooms, etc.
- Equipment can be damaged when dropped to the floor.
Impossible to expect to work properly any more
If it works properly, calibration / exactitude should be maintained.

2. Conditions of visibility :

- Ambient luminance range : 100 lux – 1,500 lux
- Viewing distance : 20 cm – 40 cm
- Viewing angle : normal to the display $\pm 20^\circ$

3. Physical :

- Temperature range : 10°C ~ 40°C
- Relative humidity range : 10 % ~ 90 %
- Ambient pressure range : 700 hPa – 1,060 hPa

Symbols	Meaning
	Manufacturer
	Date of manufactured
	Authorized representative in the European Community
	Medical device
	Serial number
	Batch code
	Catalogue number
	Caution
	Fragile, handle with care
	Keep dry
	Keep away from sunlight
	Consult instructions for use

WARNING ;

The worst damaged is occurred by dropping down to the floor.
When using, wear the strap on the wrist

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Tip Pinch

Female Scores - Unit : lb

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	6.7	1.2	4-10	6.1	1.5	3-10
8-9	7.6	1.4	5-10	7.2	1.3	5-10
10-11	9.7	1.4	7-13	9.4	1.7	6-12
12-13	10.6	2.2	6-17	10.1	2.3	5-17
14-15	10.2	2.3	5-15	9.5	2.4	4-17
16-17	11.9	2.3	9-19	11.1	2.3	7-17
18-19	13.5	2.8	7-20	13.4	2.9	8-20
20-24	11.1	2.1	8-16	10.5	1.7	8-14
25-29	11.9	1.8	8-16	11.3	1.8	9-18
30-34	12.6	3.0	8-20	11.7	2.8	7-17
35-39	11.6	2.5	8-19	11.9	2.4	8-16
40-44	11.5	2.7	5-15	11.1	3.0	6-17
45-49	13.2	3.0	9-19	12.1	2.7	7-18
50-54	12.5	2.2	9-18	11.4	2.4	7-16
55-59	11.7	1.7	9-16	10.4	1.4	8-13
60-64	10.1	2.1	7-17	9.9	2.0	6-15
65-69	10.6	2.0	7-15	10.5	2.4	7-17
70-74	10.1	2.6	7-15	9.8	2.3	6-17
75+	9.6	2.8	4-16	9.3	2.4	4-13

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Tip Pinch

Male Scores - Unit : lb

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	7.2	1.6	4-10	7.1	1.4	5-11
8-9	8.6	2.2	6-17	8.3	2.2	4-15
10-11	10.0	2.4	5-16	9.5	2.3	5-16
12-13	10.5	2.5	5-14	9.8	2.3	5-13
14-15	13.1	2.9	8-20	12.6	3.0	6-18
16-17	15.0	2.7	11-21	13.8	2.7	7-22
18-19	17.0	3.8	10-31	16.1	3.8	11-29
20-24	18.0	3.0	11-23	17.0	2.3	12-33
25-29	18.3	4.4	10-34	17.5	5.2	12-36
30-34	17.6	6.7	12-25	17.6	4.8	10-27
35-39	18.0	3.6	12-27	17.7	3.8	10-24
40-44	17.8	4.0	11-25	17.7	3.5	12-25
45-49	18.7	4.9	12-30	17.6	4.1	12-28
50-54	18.3	4.0	11-24	17.8	3.9	12-26
55-59	16.6	3.3	11-24	15.0	3.7	10-26
60-64	15.8	3.9	9-22	15.3	3.7	9-23
65-69	17.0	4.2	11-27	15.4	2.9	10-21
70-74	13.8	2.6	11-21	13.3	2.6	10-21
75+	14.0	3.4	7-21	13.9	3.7	8-25

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Key Pinch

Female Scores - Unit : lb

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	9.6	1.5	6-12	9.1	1.5	5-11
8-9	11.6	2.6	8-23	11.3	2.1	8-20
10-11	14.2	2.1	11-21	13.3	2.0	11-19
12-13	15.2	2.6	11-22	14.1	3.0	10-23
14-15	15.6	2.5	12-22	14.8	2.7	7-22
16-17	17.3	3.0	12-27	16.6	3.1	11-25
18-19	18.1	2.4	12-23	17.2	2.5	12-22
20-24	17.6	2.0	14-23	16.2	2.1	13-23
25-29	17.7	2.1	14-22	16.6	2.1	13-22
30-34	18.7	3.0	13-25	17.8	3.6	12-26
35-39	16.6	2.0	12-21	16.0	2.7	12-22
40-44	16.7	3.1	10-24	15.8	3.1	8-22
45-49	17.6	3.2	13-24	16.6	2.9	12-24
50-54	16.7	2.5	12-22	16.1	2.7	12-22
55-59	15.7	2.5	11-21	14.7	2.2	12-19
60-64	15.5	2.7	10-20	14.1	2.5	10-19
65-69	15.0	2.6	10-21	14.3	2.8	10-20
70-74	14.5	2.9	8-22	13.8	3.0	9-22
75+	12.6	2.3	8-17	11.4	2.6	7-16

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Key Pinch

Male Scores - Unit : lb

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	11.3	2.0	7-16	10.6	2.1	4-15
8-9	13.1	2.6	9-18	12.2	2.5	8-20
10-11	15.3	3.1	9-22	14.5	2.9	9-22
12-13	16.6	2.9	11-22	15.6	2.8	10-21
14-15	20.9	3.8	14-32	19.9	3.7	12-26
16-17	23.3	3.4	14-31	21.8	3.6	13-30
18-19	23.5	4.1	17-34	22.9	4.0	14-33
20-24	26.0	3.5	21-34	24.8	3.4	19-31
25-29	26.7	4.9	19-41	25.0	4.4	19-39
30-34	26.4	4.8	20-36	26.2	5.1	17-36
35-39	26.1	3.2	21-32	25.6	3.9	18-32
40-44	25.6	2.6	21-31	25.1	4.0	19-31
45-49	25.8	3.9	19-35	24.8	4.4	18-42
50-54	26.7	4.4	20-34	26.1	4.2	20-37
55-59	24.2	4.2	18-34	23.0	4.7	13-31
60-64	23.2	5.4	14-37	22.2	4.1	16-33
65-69	23.4	3.9	17-32	22.0	3.6	17-28
70-74	19.3	2.4	16-25	19.2	3.0	13-28
75+	20.5	4.6	9-31	19.1	3.0	13-24

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Palmar Pinch

Female Scores - Unit : lb

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	9.0	1.7	6-12	8.4	1.4	6-11
8-9	10.7	2.1	8-17	10.3	2.2	6-20
10-11	13.5	2.2	11-22	12.6	2.0	10-17
12-13	15.4	2.6	11-23	14.2	2.8	10-20
14-15	15.6	3.3	9-26	14.7	3.4	8-25
16-17	17.8	3.9	12-27	16.6	3.9	10-26
18-19	20.2	3.3	10-26	19.0	3.0	14-25
20-24	17.2	2.3	14-23	16.3	2.8	11-24
25-29	17.7	3.2	13-29	17.0	3.0	13-26
30-34	19.3	5.0	12-34	18.1	4.8	12-32
35-39	17.5	4.2	13-29	17.1	3.4	12-24
40-44	17.0	3.1	10-23	16.6	3.5	10-25
45-49	17.9	3.0	12-27	17.5	2.8	12-24
50-54	17.3	3.1	12-23	16.4	2.9	12-22
55-59	16.0	3.1	11-26	15.4	3.0	11-21
60-64	14.8	3.1	10-20	14.3	2.7	10-20
65-69	14.2	3.1	8-20	13.7	3.4	8-22
70-74	14.4	2.6	9-19	14.0	1.9	10-17
75+	12.0	2.6	8-17	11.5	2.6	6-16

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Palmar Pinch

Male Scores - Unit : lb

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	10.0	2.2	5-13	9.2	2.0	5-13
8-9	11.6	2.3	7-17	11.2	2.8	6-16
10-11	13.9	2.7	7-21	13.2	2.9	8-23
12-13	15.5	3.6	8-26	15.1	4.1	8-23
14-15	19.2	4.2	11-28	18.8	5.0	10-33
16-17	22.2	5.0	17-39	20.3	4.1	14-31
18-19	23.8	4.3	17-34	23.4	4.5	16-34
20-24	26.6	5.5	18-45	25.7	5.8	15-42
25-29	26.0	4.3	19-35	25.1	4.2	19-36
30-34	24.7	4.7	16-34	25.4	5.7	15-37
35-39	26.2	4.1	19-36	25.9	5.4	14-40
40-44	24.5	4.3	17-37	24.8	4.9	15-37
45-49	24.0	3.3	19-33	23.7	3.8	18-33
50-54	23.8	5.4	15-36	24.0	5.8	16-36
55-59	23.7	4.8	16-34	21.3	4.5	12-28
60-64	21.8	3.3	16-28	21.2	3.2	15-27
65-69	21.4	3.0	15-25	21.2	4.1	14-30
70-74	18.1	3.4	14-27	18.8	3.3	13-27
75+	18.7	4.2	9-26	18.3	3.8	10-26

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Tip Pinch

Female Scores - Unit : kg

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	3.0	0.5	1-5	2.8	0.7	1-5
8-9	3.4	0.6	2-5	3.3	0.6	2-5
10-11	4.4	0.6	3-6	4.3	0.8	2-5
12-13	4.8	1.0	2-8	4.6	1.0	2-8
14-15	4.6	1.0	2-7	4.3	1.1	1-8
16-17	5.4	1.0	4-9	5.0	1.0	3-8
18-19	6.1	1.3	3-9	6.1	1.3	3-9
20-24	5.0	1.0	3-7	4.8	0.8	3-6
25-29	5.4	0.8	3-7	5.1	0.8	4-8
30-34	5.7	1.4	3-9	5.3	1.3	3-8
35-39	5.3	1.1	3-9	5.4	1.1	3-7
40-44	5.2	1.2	2-7	5.0	1.4	2-8
45-49	6.0	1.4	4-9	5.5	1.2	3-8
50-54	5.7	1.0	4-8	5.2	1.1	3-7
55-59	5.3	0.8	4-7	4.7	0.6	3-6
60-64	4.6	1.0	3-8	4.5	0.9	2-7
65-69	4.8	0.9	3-7	4.8	1.1	3-8
70-74	4.6	1.2	3-7	4.4	1.0	2-8
75+	4.4	1.3	1-7	4.2	1.1	1-6

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Tip Pinch

Male Scores - Unit : kg

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	3.3	0.7	1-5	3.2	0.6	2-5
8-9	3.9	1.0	2-8	3.8	1.0	1-7
10-11	4.5	1.1	2-7	4.3	1.0	2-7
12-13	4.8	1.1	2-6	4.4	1.0	2-6
14-15	5.9	1.3	3-9	5.7	1.4	2-8
16-17	6.8	1.2	4-10	6.3	1.2	3-10
18-19	7.7	1.7	4-14	7.3	1.7	4-13
20-24	8.2	1.4	4-10	7.7	1.0	5-15
25-29	8.3	2.0	4-15	7.9	2.4	5-16
30-34	8.0	3.0	5-11	8.0	2.2	4-12
35-39	8.2	1.6	5-12	8.0	1.7	4-11
40-44	8.1	1.8	4-11	8.0	1.6	5-11
45-49	8.5	2.2	5-14	8.0	1.9	5-13
50-54	8.3	1.8	4-11	8.1	1.8	5-12
55-59	7.5	1.5	4-11	6.8	1.7	4-12
60-64	7.2	1.8	4-10	6.9	1.7	4-10
65-69	7.7	1.9	4-12	7.0	1.3	4-10
70-74	6.3	1.2	4-10	6.0	1.2	4-10
75+	6.4	1.5	3-10	6.3	1.7	3-11

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Key Pinch

Female Scores - Unit : kg

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	4.4	0.7	2-5	4.1	0.7	2-5
8-9	5.3	1.2	3-10	5.1	1.0	3-9
10-11	6.4	1.0	4-10	6.0	0.9	4-9
12-13	6.9	1.2	4-10	6.4	1.4	4-10
14-15	7.1	1.1	5-10	6.7	1.2	3-10
16-17	7.8	1.4	5-12	7.5	1.4	4-11
18-19	8.2	1.1	5-10	7.8	1.1	5-10
20-24	8.0	0.9	6-10	7.3	1.0	5-10
25-29	8.0	1.0	6-10	7.5	1.0	5-10
30-34	8.5	1.4	5-11	8.1	1.6	5-12
35-39	7.5	0.9	5-10	7.3	1.2	5-10
40-44	7.6	1.4	4-11	7.2	1.4	3-10
45-49	8.0	1.5	5-11	7.5	1.3	5-11
50-54	7.6	1.1	5-10	7.3	1.2	5-10
55-59	7.1	1.1	4-10	6.7	1.0	5-9
60-64	7.0	1.2	4-9	6.4	1.1	4-9
65-69	6.8	1.2	4-10	6.5	1.3	4-9
70-74	6.6	1.3	3-10	6.3	1.4	4-10
75+	5.7	1.0	3-8	5.2	1.2	3-7

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Key Pinch

Male Scores - Unit : kg

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	5.1	0.9	3-7	4.8	1.0	1-7
8-9	5.9	1.2	4-8	5.5	1.1	3-9
10-11	6.9	1.4	4-10	6.6	1.3	4-10
12-13	7.5	1.3	4-10	7.1	1.3	4-10
14-15	9.5	1.7	6-15	9.0	1.7	5-12
16-17	10.6	1.5	6-14	9.9	1.6	5-14
18-19	10.7	1.9	7-15	10.4	1.8	6-15
20-24	11.8	1.6	9-15	11.2	1.5	8-14
25-29	12.1	2.2	8-19	11.3	2.0	8-18
30-34	12.0	2.2	9-16	11.9	2.3	7-16
35-39	11.8	1.5	9-15	11.6	1.8	8-15
40-44	11.6	1.2	9-14	11.4	1.8	8-14
45-49	11.7	1.8	8-16	11.2	2.0	8-19
50-54	12.1	2.0	9-15	11.8	1.9	9-17
55-59	11.0	1.9	8-15	10.4	2.1	5-14
60-64	10.5	2.4	6-17	10.1	1.9	7-15
65-69	10.6	1.8	7-15	10.0	1.6	7-13
70-74	8.8	1.1	7-11	8.7	1.4	5-13
75+	9.3	2.1	4-14	8.7	1.4	5-11

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Palmar Pinch

Female Scores - Unit : kg

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	4.1	0.8	2-5	3.8	0.6	2-5
8-9	4.9	1.0	3-8	4.7	1.0	2-9
10-11	6.1	1.0	4-10	5.7	0.9	4-8
12-13	7.0	1.2	4-10	6.4	1.3	4-9
14-15	7.1	1.5	4-12	6.7	1.5	3-11
16-17	8.1	1.8	5-12	7.5	1.8	4-12
18-19	9.2	1.5	4-12	8.6	1.4	6-11
20-24	7.8	1.0	6-10	7.4	1.3	4-11
25-29	8.0	1.5	5-13	7.7	1.4	5-12
30-34	8.8	2.3	5-15	8.2	2.2	5-15
35-39	7.9	1.9	5-13	7.8	1.5	5-11
40-44	7.7	1.4	4-10	7.5	1.6	4-11
45-49	8.1	1.4	5-12	7.9	1.3	5-11
50-54	7.8	1.4	5-10	7.4	1.3	5-10
55-59	7.3	1.4	4-12	7.0	1.4	4-10
60-64	6.7	1.4	4-9	6.5	1.2	4-9
65-69	6.4	1.4	3-9	6.2	1.5	3-10
70-74	6.5	1.2	4-9	6.4	0.9	4-8
75+	5.4	1.2	3-8	5.2	1.2	2-7

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN Hydraulic Pinch Gauge (SH5005)

Norm range scores for pinch strength

Palmar Pinch

Male Scores - Unit : kg

AGE GROUP	RIGHT HAND		Range	LEFT HAND		Range
	Mean	SD		Mean	SD	
6-7	4.5	1.0	2-6	4.2	0.9	2-6
8-9	5.3	1.0	3-8	5.1	1.3	2-7
10-11	6.3	1.2	3-10	6.0	1.3	3-10
12-13	7.0	1.6	3-12	6.8	1.9	3-10
14-15	8.7	1.9	4-13	8.5	2.3	4-15
16-17	10.1	2.3	7-18	9.2	1.9	6-14
18-19	10.8	2.0	7-15	10.6	2.0	7-15
20-24	12.1	2.5	8-20	11.7	2.6	6-19
25-29	11.8	2.0	8-16	11.4	1.9	8-16
30-34	11.2	2.1	7-15	11.5	2.6	6-17
35-39	11.9	1.9	8-16	11.7	2.4	6-18
40-44	11.1	2.0	7-17	11.2	2.2	6-17
45-49	10.9	1.5	8-15	10.8	1.7	8-15
50-54	10.8	2.4	6-16	10.9	2.6	7-16
55-59	10.8	2.2	7-15	9.7	2.0	5-13
60-64	9.9	1.5	7-13	9.6	1.5	6-12
65-69	9.7	1.4	6-11	9.6	1.9	6-14
70-74	8.2	1.5	6-12	8.5	1.5	5-12
75+	8.5	1.9	4-12	8.3	1.7	4-12

From Mathiowetz, Article titled "Grip Strength : Norms for 6 to 75+ year olds".
 American Journal of Occupational Therapy, Oct 1986 Vol, 40 NO.10

SAEHAN

Hydraulic Pinch Gauge

(SH5005)

[SH-UM-001, Rev.5, 2022. 06. 01]

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※ If there has been occurred any serious accident in relation to the our device released in market, the quality management representative of our company will notify the Notified Body & the competent authority of any serious accident in accordance with the vigilance procedure.