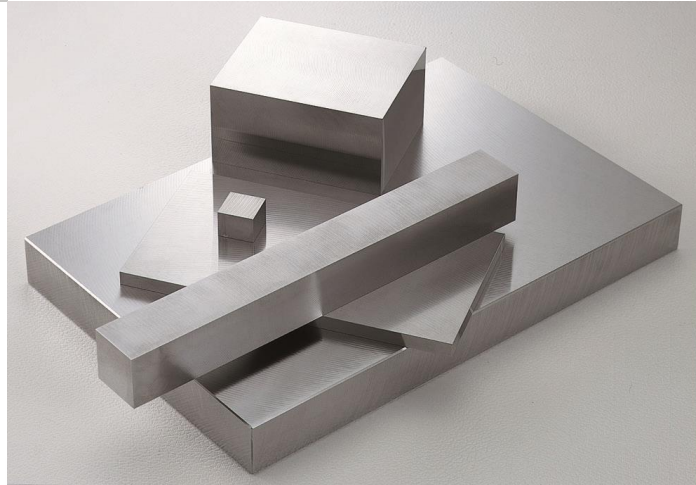




รับงานสั่งทำตามแบบของลูกค้า
ตามมาตรฐาน Misumi
Email : mtstech@cscsoms.com

จำหน่ายเหล็กปาดเจียร Finishing Plate
เกรด S50C, SS400, SKD11, SKD61, P20, NAK80
ตามขนาดที่ลูกค้าต้องการ



*"เรามุ่งมั่นผลิตชิ้นส่วน
แม่พิมพ์และวัตถุดิบคุณภาพ
ที่มีความแม่นยำ ทนทานสูง
ส่งมอบสินค้ารวดเร็ว"*

สารบัญ

1



GPA

GPB

Guide Pins

2



BA

BB

Guide Bushes

3



EGBH

EGB

Ejector Guide Bushes

4



GBHE

GBSE

Guide Bushes

5



EGH

EGHG

Ejector Guide Pins

6



SPP

Support Pins

7



EP

Straight Ejector Pins / Special Sizes Ejector Pins
SKD 61

8



EPH

High Speed Ejector Pins
SKH 51

EPCM

Straight Ejector Pins
SACM 645

9



SEP

Stepped Ejector Pins

ESP

Ejector Sleeve Pins

10



EPB EPBH

Blade Ejector Pins
SKD 61 / SKH 51

11



AP

Angular Pins

RPH

Return Pins

12



SB

Sprue Bushes

TP

Tapered Pin Set

13



LRA

LRB

Locating Rings

14



PBTN
Puller Bolts

STBG
Stop Bolts

15



DF

DL

DM

Die Springs

16



DH

DB

Die Springs

17



TR

TY

MRS

Die Springs

18



PL

CL

CHI

Parting Locks

Cooling Plugs

Eye Bolts

19



MSW

CB

Screw Plugs

Socket Head Cap Screws

20



MSB

STP

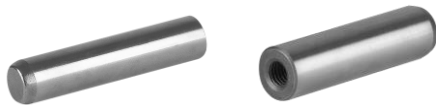
BPS BSJ

Stripper Bolts

Stop Pins

Ball Plungers

21



DPS

DPT

Dowel Pins

22



GPS

GPSP

Guide Posts

23



GPSB

GPBP

Guide Posts

24



URY

URYD

URB

URBD

Urethane

สารบัญ

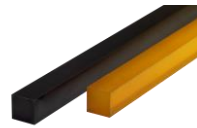
25



URYW



URBW
Urethane



URBT URYT

26



PD



PH

Straight Punch

27



CS SS
Shim Plate



DT_ DT_X
Date Marked Pin Set

28



Mold Counter



Hardness Tester

29



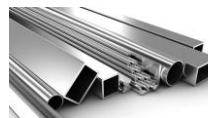
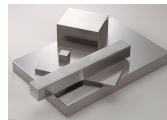
Linear Shaft SUJ2, Silver Steel Rod SK4

30



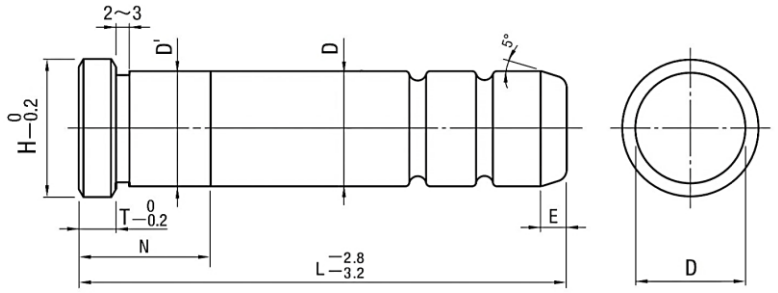
Steel : S50C, S45C, P20, NAK80, SKD61,
SKD11, SCM415, SCM440, SUJ2, SS400

Last



Finishing Plate
Stainless, Aluminium, Brass, Copper

Guide Pins สลักนํ้ามีบ่า (GPA)



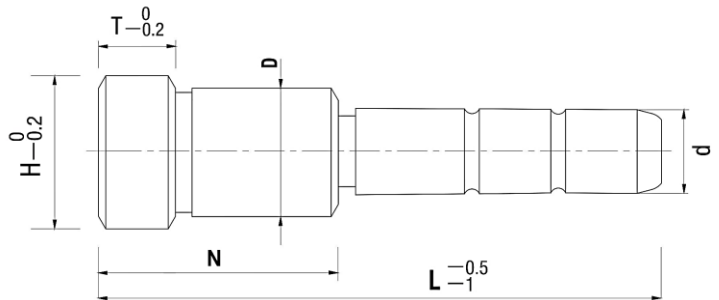
| | |
|----------|------------|
| Code | GPA |
| Material | SCM415 |
| Hardness | HRC 60 ± 2 |

Order Code d x L
GPA 25 x 100

| Code | D | | D' | H | T | E | L |
|------|--------|--------|--------|--------|----|----|-----------|
| GPA | 12 | -0.020 | 12 | +0.015 | 15 | 5 | 50 - 200 |
| | 16 | -0.025 | 16 | +0.007 | 20 | | 50 - 300 |
| | 18 | | 18 | | 23 | | 50 - 300 |
| | 20 | -0.025 | 20 | +0.017 | 25 | 8 | 50 - 350 |
| | 25 | -0.030 | 25 | +0.008 | 30 | | 50 - 350 |
| | 30 | | 30 | | 35 | | 50 - 350 |
| | 35 | -0.030 | 35 | +0.020 | 40 | 10 | 55 - 400 |
| | 40 | -0.040 | 40 | +0.009 | 45 | 12 | 130 - 450 |
| | 50 | | 50 | | 56 | | 130 - 550 |
| | 60 | -0.030 | 60 | +0.024 | 65 | 15 | 8 |
| | -0.050 | | +0.011 | | | | |

| L | ~ 50 | 55 ~ 95 | 100 ~ 130 | 135 ~ 160 | 165 ~ 220 | ~ 225 |
|---|------|---------|-----------|-----------|-----------|-------|
| N | 15 | 20 | 25 | 30 | 35 | 40 |

Guide Pins สลักนํ้ามีบ่า (GPB)



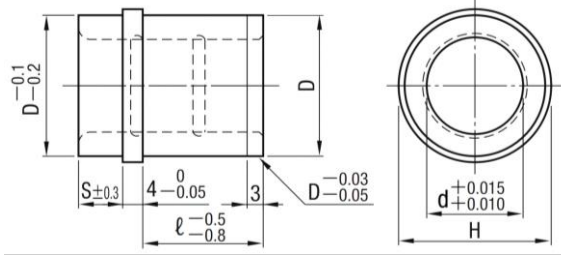
| | |
|----------|------------|
| Code | GPB |
| Material | SUJ2 |
| Hardness | HRC 60 ± 2 |

Order Code d x L x N
GPB 25 x 100 x N30

| Code | d | | D | H | T | L | N |
|------|----|--------|----|--------|----|-------------------|-------------------|
| GPB | 16 | -0.005 | 25 | +0.020 | 30 | กำหนดตามแบบลูกค้า | กำหนดตามแบบลูกค้า |
| | 20 | -0.020 | 30 | +0.005 | 35 | | |
| | 25 | | 35 | +0.030 | 40 | | |
| | 30 | -0.010 | 42 | +0.010 | 47 | 10 | |
| | 35 | -0.030 | 48 | | 54 | | |
| | 40 | | 55 | +0.050 | 61 | | |
| | 50 | -0.030 | 70 | +0.030 | 76 | 15 | |
| | 60 | -0.050 | 80 | | 86 | | |

หมายเหตุ ลูกค้ําต้องกำหนดระยะ N ตามขนาดที่ต้องการ (ระยะ N ขึ้นอยู่กับความหนาของแผ่น Plate ที่นํ้าสลักไปสวม)

Ejector Guide Bushes (EGBH)

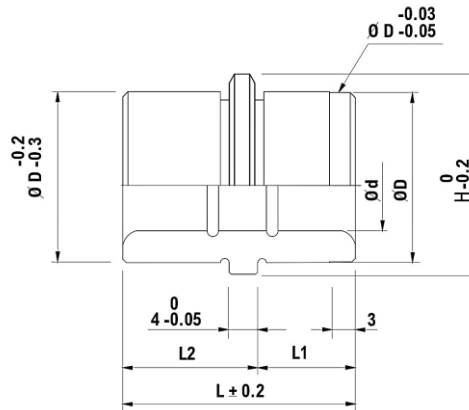


| | |
|----------|------------|
| Code | EGBH |
| Material | SUJ2 |
| Hardness | HRC 60 ± 2 |

Order Code d x l
EGBH 25 x 15

| Code | d | S | H | D | ℓ | |
|------|----|----|----|----|-------------------|----------------|
| EGBH | 10 | 8 | 21 | 18 | 0 -0.011 | 10 13 15 20 |
| | 12 | 10 | 23 | 20 | 0 -0.013 | 10 13 |
| | 13 | 10 | 25 | 22 | | 10 13 15 20 25 |
| | 16 | 10 | 28 | 25 | 10 13 15 20 25 | |
| | 20 | 10 | 33 | 30 | 10 13 15 20 25 30 | |
| | 25 | 10 | 38 | 35 | 0 -0.016 | 13 15 20 25 30 |
| | 30 | 15 | 43 | 40 | 13 15 20 25 30 | |
| | 35 | 20 | 48 | 45 | 20 25 30 | |
| | 40 | 20 | 55 | 52 | 0 -0.019 | 20 25 30 |
| | 50 | 20 | 65 | 62 | 25 30 | |

Ejector Guide Bushes (EGB)

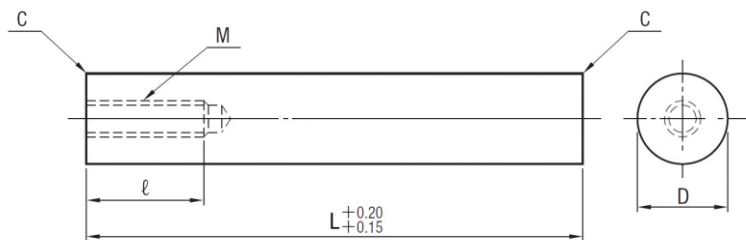


| | |
|----------|------------|
| Code | EGB |
| Material | SUJ2 |
| Hardness | HRC 60 ± 2 |

Order Code d x L
EGB 30 x 42

| Code | d | L | D | H | L1 | L2 | | | | | |
|------|-------------|------------------|----|-------------|-------------|----|----|----|----|----|----|
| EGB | 10 | +0.014 | 23 | 16 | 0 -0.011 | 20 | 12 | | | | |
| | | +0.005 | 25 | 18 | | | | 12 | 13 | | |
| | 12 | +0.017 +0.006 | 32 | 25 | 0 -0.013 | 22 | 14 | 18 | | | |
| | | | 25 | | | | | | 12 | 13 | |
| | | | 32 | | | | | | 14 | 18 | |
| | | | 42 | | | | | | 19 | 23 | |
| | 16 | +0.020 +0.007 | 25 | 30 | 0 -0.016 | 30 | 12 | 13 | | | |
| | | | 32 | | | | | | 14 | 18 | |
| | | | 42 | | | | | | 19 | 23 | |
| | | | 52 | | | | | | 24 | 28 | |
| | 20 | +0.025 +0.009 | 25 | 35 | 0 -0.019 | 35 | 12 | 13 | | | |
| | | | 32 | | | | | | 14 | 18 | |
| | | | 42 | | | | | | 19 | 23 | |
| | | | 52 | | | | | | 24 | 28 | |
| | 25 | 0 -0.011 | 32 | 40 | 0 -0.016 | 40 | 12 | 13 | | | |
| | | | | | | | | | 42 | 14 | 18 |
| | | | | | | | | | 52 | 19 | 23 |
| | | | | | | | | | 52 | 24 | 28 |
| | 30 | 0 -0.011 | 42 | 50 | 0 -0.016 | 45 | 14 | 18 | | | |
| | | | | | | | | | 52 | 19 | 23 |
| 52 | | | | | | | | | 24 | 28 | |
| 52 | | | | | | | | | 19 | 23 | |
| 40 | 0 -0.011 | 42 | 60 | 0 -0.019 | 55 | 19 | 23 | | | | |
| | | | | | | | | 52 | 24 | 28 | |
| 50 | 0 -0.011 | 52 | 60 | 0 -0.019 | 66 | 24 | 28 | | | | |
| | | | | | | | | 52 | 24 | 28 | |

Ejector Guide Pins (EGH)

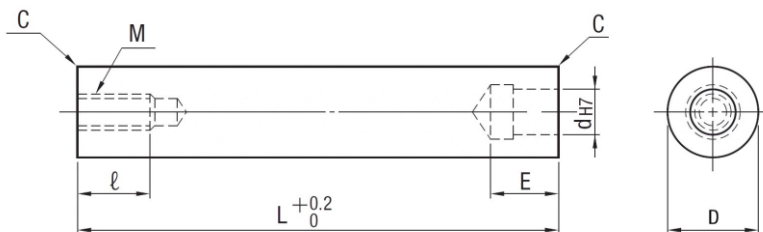


Order Code d x L
EGH 30 x 50

| | |
|----------|------------|
| Code | EGH |
| Material | SUJ2 |
| Hardness | HRC 60 ± 2 |

| Code | D | M | ℓ | T | L 5mm increments | |
|------|----|---------|----|----|---------------------|----------|
| EGH | 12 | M6x1.0 | 12 | 5 | 40 - 100 | |
| | 13 | | | | -0.020 | 40 - 150 |
| | 16 | | | | -0.025 | 40 - 150 |
| | 20 | M8x1.25 | 16 | 8 | 40 - 175 | |
| | 25 | | | | -0.025 | 50 - 250 |
| | 30 | | | | -0.030 | 50 - 300 |
| | 35 | M10x1.5 | 20 | 10 | 50 - 300 | |
| | 40 | | | | -0.025 | 50 - 350 |
| | 50 | | | | -0.030 | 50 - 350 |

Ejector Guide Pins (EGHC)

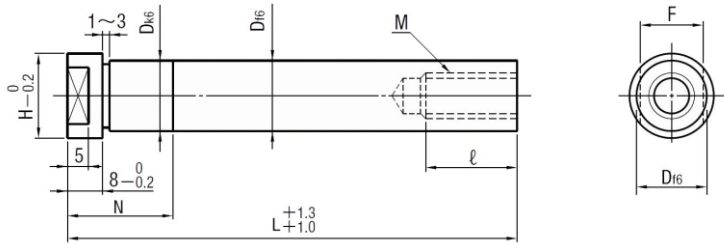


Order Code d x L
EGHC 30 x 50

| | |
|----------|------------|
| Code | EGHC |
| Material | SUJ2 |
| Hardness | HRC 60 ± 2 |

| Code | D | M | ℓ | d | E | Dowel pins | L 5mm increments | | |
|------|----|---------|----|----|-------------|------------|---------------------|----------|----------|
| EGHC | 12 | M6x1.0 | 12 | 6 | +0.012 0 | 15 | MSTH 6-30 | 40 - 100 | |
| | 13 | | | | | | | -0.020 | 40 - 150 |
| | 16 | | | | | | | -0.025 | 40 - 150 |
| | 20 | M8x1.25 | 16 | 8 | +0.015 0 | 20 | MSTH 8-40 | 50 - 175 | |
| | 25 | | | | | | | -0.025 | 50 - 250 |
| | 30 | | | | | | | -0.030 | 50 - 300 |
| | 35 | M10x1.5 | 20 | 13 | +0.018 0 | 25 | MSTH 13-50 | 50 - 300 | |
| | 40 | | | | | | | -0.025 | 50 - 350 |
| | 50 | | | | | | | -0.030 | 50 - 350 |

Support Pins ชั้วพ้อร้ทพ้บ (SPP)

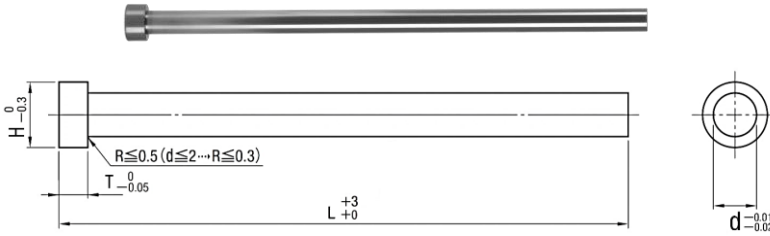


Order Code d x L x N
SPP 20 x 100 x 20

| | |
|-----------------|------------|
| Code | SPP |
| Material | SUJ2 |
| Hardness | HRC 60 ± 2 |

| Code | D _{f6} | | D _{k6} | | F | H | M | ℓ | L 5mm increments | N |
|------------|-----------------|------------------|-----------------|------------------|------------------|----|---------|----|---------------------|---------------|
| SPP | 13 | -0.016 | 13 | +0.012 | 12 | 16 | M6x1.0 | 12 | 60 - 120 | 8 - 60 |
| | 16 | -0.027 | 16 | +0.001 | 14 | 19 | M10x1.5 | 20 | 80 - 210 | |
| | 20 | -0.020 -0.033 | 20 | +0.015 +0.002 | 19 | 23 | M16x2.0 | 32 | 90 - 300 | |
| | 25 | | 25 | | 22 | 28 | | | 100 - 300 | |
| | 30 | 30 | 29 | 35 | 150 - 350 | | | | | |
| | 35 | -0.025 | 35 | +0.018 | 32 | 40 | | | 150 - 350 | |
| | 40 | -0.041 | 40 | +0.002 | 36 | 45 | | | 150 - 350 | |

Straight Ejector Pins เข็มกระทุ้งชนิดตรง (EP)



| | |
|-------------------|---------------|
| Code | EP |
| Material | SKD 61 |
| Inside Hardness | HRC 40 ± 2 |
| Outside Hardness | HV 900 - 1100 |
| Surface hardening | Nitriding |

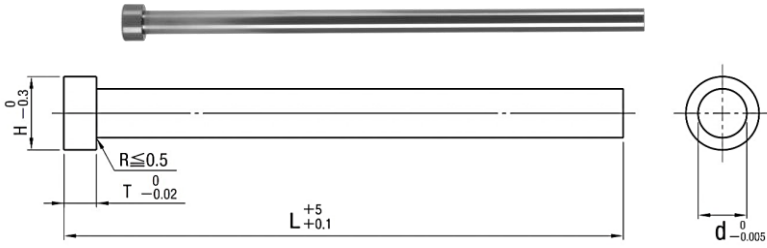
Order Code d x L
EP 1.5 x 100

| Code | d | H | T | L |
|------|-----|---|---|---|
| EP | 1.5 | 4 / 6 | 4 | 100 150 200 250 |
| | 2 | | | 100 150 200 250 300 350 |
| | 2.5 | 6 | | 100 150 200 250 300 350 400 |
| | 3 | | | 100 150 200 250 300 350 400 450 |
| | 3.5 | 7 | | 100 150 200 250 300 350 400 450 500 |
| | 4 | | | 100 150 200 250 300 350 400 450 500 |
| | 4.5 | 8 | | 100 150 200 250 300 350 400 450 500 |
| | 5 | | | 100 150 200 250 300 350 400 450 500 550 600 |
| | 5.5 | 10 | | 100 150 200 250 300 350 400 450 500 550 600 650 700 |
| | 6 | | | 100 150 200 250 300 350 400 450 500 550 600 650 700 750 |
| | 7 | 11 | | 100 150 200 250 300 350 400 450 500 550 600 650 700 750 |
| | 8 | | | 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 |
| | 9 | 14 | | 100 150 200 250 300 350 400 450 500 550 600 |
| | 10 | | | 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 |
| | 12 | 17 | | 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 |
| | 14 | | | 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 |
| 15 | 20 | 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 | | |
| 16 | | 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800 | | |

Special Sizes Ejector Pins เข็มกระทุ้งขนาดพิเศษ (EP)

| Code | d | H | T | L |
|------|-----------|-------------------------------------|---|-------------------------------------|
| EP | 1.0 | 3 / 4 / 6 | 4 | 100 150 200 |
| | 1.1 - 1.4 | | | 100 150 200 |
| | 1.6 - 1.9 | | | 100 150 200 250 |
| | 2.1 - 2.4 | 5 / 6 | | 100 150 200 250 300 |
| | 2.6 - 2.9 | | | 100 150 200 250 300 |
| | 3.1 - 3.4 | 7 | | 100 150 200 250 300 350 400 |
| | 3.6 - 3.9 | 8 | | 100 150 200 250 300 350 400 |
| | 4.1 - 4.4 | | | 100 150 200 250 300 350 400 |
| | 4.6 - 4.9 | 9 | | 100 150 200 250 300 350 400 |
| | 5.1 - 5.4 | 10 | | 100 150 200 250 300 350 400 |
| | 5.6 - 5.9 | | | 100 150 200 250 300 350 400 |
| | 6.1 - 6.4 | 11 | | 100 150 200 250 300 350 400 |
| | 6.5 | | | 100 150 200 250 300 350 400 450 500 |
| | 6.6 - 6.9 | | | 100 150 200 250 300 350 400 |
| | 7.1 - 7.4 | | | 100 150 200 250 300 350 400 |
| | 7.5 | 13 | | 100 150 200 250 300 350 400 450 500 |
| | 7.6 - 7.9 | | | 100 150 200 250 300 350 400 |
| | 8.1 - 8.4 | | | 100 150 200 250 300 350 400 |
| | 8.5 | | | 100 150 200 250 300 350 400 450 500 |
| | 9.5 | | | 14 |
| 10.5 | 15 | 100 150 200 250 300 350 400 450 500 | | |
| 11.0 | | 100 150 200 250 300 350 400 450 500 | | |
| 11.5 | 16 | 100 150 200 250 300 350 400 450 500 | | |
| 13.0 | | 100 150 200 250 300 350 400 450 500 | | |

High Speed Ejector Pins เข็มกระทุ้งไฮสปีด (EPH)

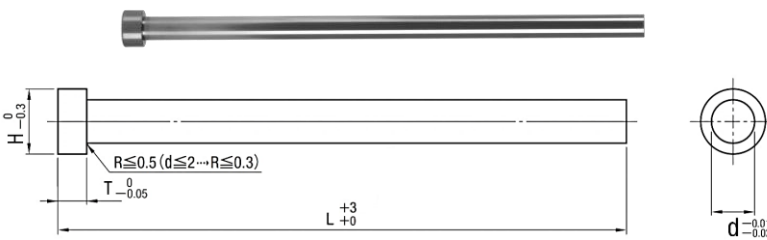


| | |
|----------|-------------|
| Code | EPH |
| Material | SKH 51 |
| Hardness | HRC 58 - 60 |

Order Code d x L
EPH 1.5 x 100

| Code | d | H | T | L | |
|------|-----|----|---|-------------|---------------------|
| EPH | 1 | 4 | 4 | 100 150 200 | |
| | 1.5 | 6 | | 6 | 100 150 200 250 |
| | 2 | | | | |
| | 2.5 | | | | |
| | 3 | | | | |
| | 3.5 | 7 | 8 | | 100 150 200 250 300 |
| | 4 | 8 | | | |
| | 4.5 | 9 | | | |
| | 5 | 10 | | | |
| | 6 | 11 | | | |
| | 7 | 13 | | | |
| | 8 | 15 | | | |
| 9 | 17 | 8 | | | |
| 10 | | | | | |
| 12 | | | | | |

Straight Ejector Pins เข็มกระทุ้งชนิดตรง (EPCM)

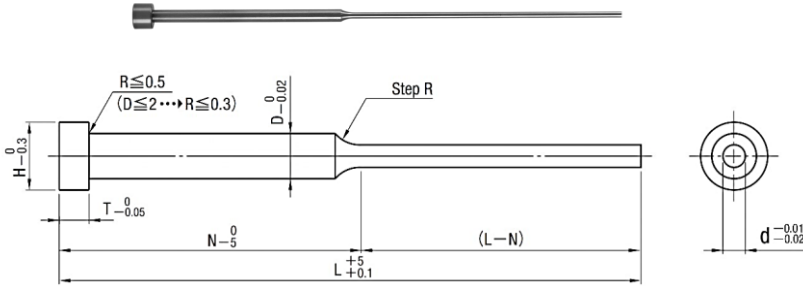


| | |
|-------------------|---------------|
| Code | EPCM |
| Material | SACM 645 |
| Inside Hardness | HRC 30 ± 2 |
| Outside Hardness | HV 900 - 1100 |
| Surface hardening | Nitriding |

Order Code d x L
EPCM 1.5 x 100

| Code | d | H | T | L |
|------|-----|----|---|-------------------------------------|
| EPCM | 1 | 3 | 4 | 100 150 200 250 |
| | 1.5 | 4 | | |
| | 2 | 5 | | |
| | 2.5 | 6 | | |
| | 3 | | | |
| | 3.5 | 7 | 6 | 100 150 200 250 300 350 400 |
| | 4 | 8 | | |
| | 4.5 | 9 | | |
| | 5 | 10 | | |
| | 5.5 | 11 | | |
| | 6 | 13 | | |
| | 7 | 15 | | |
| | 8 | 17 | 8 | 100 150 200 250 300 350 400 450 500 |
| | 10 | 19 | | |
| | 12 | 20 | | |
| | 14 | 21 | | |
| 15 | | | | |
| 16 | | | | |

Stepped Ejector Pins เข็มกระทุ้งปลายลด (SEP)

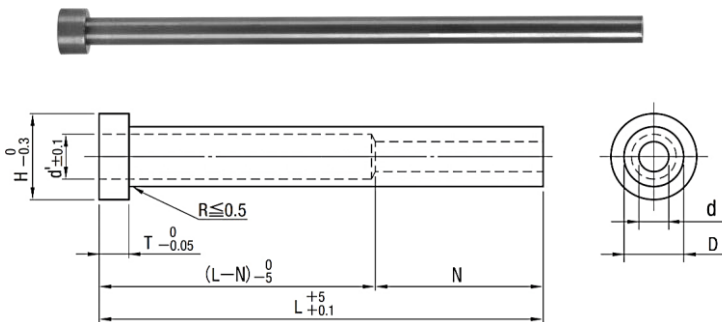


| | |
|-------------------|---------------|
| Code | SEP |
| Material | SKD 61 |
| Inside Hardness | HRC 40 ± 2 |
| Outside Hardness | HV 900 - 1100 |
| Surface hardening | Nitriding |

Order Code d x N x L
SEP 1.5 x 50 x 100

| Code | d | D | H | T | L | N |
|------|-----|---|---|---|-----|---------------|
| SEP | 1 | 3 | 6 | 4 | 100 | 50 70 |
| | | | | | 150 | 50 70 |
| | | | | | 200 | 50 70 100 120 |
| | 1.2 | 3 | 6 | 4 | 100 | 50 70 |
| | | | | | 150 | 50 70 |
| | | | | | 200 | 50 70 100 120 |
| | 1.5 | 3 | 6 | 4 | 100 | 50 70 |
| | | | | | 150 | 50 70 |
| | | | | | 200 | 50 70 100 120 |
| | 2 | 4 | 8 | 6 | 100 | 50 70 |
| | | | | | 150 | 50 70 |
| | | | | | 200 | 50 70 100 120 |
| | 2.5 | 4 | 8 | 6 | 100 | 50 70 |
| | | | | | 150 | 50 70 |
| | | | | | 200 | 50 70 100 120 |
| | 3 | 4 | 8 | 6 | 100 | 50 70 |
| | | | | | 150 | 50 70 |
| | | | | | 200 | 50 70 100 120 |

Ejector Sleeve Pins เข็มถักกระทุ้ง (ESP)



| D ≤ 12 | D ≥ 15 |
|--------|--------|
| -0.01 | -0.01 |
| -0.02 | -0.03 |

| d ≤ 3 | 3.5 ≤ d ≤ 6 | 6.5 ≤ d ≤ 10 | d ≥ 12 |
|--------|-------------|--------------|--------|
| +0.010 | +0.012 | +0.015 | +0.018 |
| 0 | 0 | 0 | 0 |

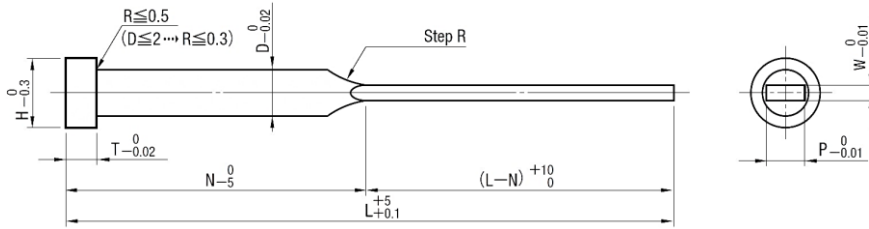
| Code | d | D | H | T | L |
|------|-----|----|----|---|-----------------------------|
| ESP | 2 | 5 | 9 | 6 | 100 125 150 175 200 250 300 |
| | 2.5 | 6 | 10 | | |
| | 3 | | 11 | | |
| | 3.5 | 7 | 11 | 8 | |
| | 4 | | | | |
| | 4.5 | 8 | 13 | | |
| | 5 | | | | |
| 6 | 10 | 15 | | | |

| | |
|-------------------|---------------|
| Code | ESP |
| Material | SKD 61 |
| Inside Hardness | HRC 40 ± 2 |
| Outside Hardness | HV 900 - 1100 |
| Surface hardening | Nitriding |

Order Code d x L
ESP 2 x 100

| L | 100 | 125 | 150 | 175 | 200 | 250 | 300 |
|---|-----|-----|-----|-----|-----|-----|-----|
| N | 50 | | | 75 | | 100 | 115 |

Blade Ejector Pins เข็มกระทุ้งแบบ (EPB EPBH)

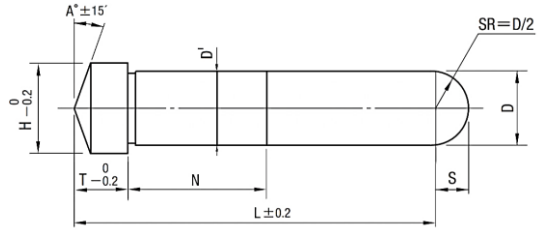


Order Code D x L x P x W x N x H x T
EPB 4 x 150 x P3.0 x W1.0 x N50 x H8 x T6

| | |
|--------------------------|---------------|
| Code | EPB |
| Material | SKD 61 |
| Inside Hardness | HRC 40 ± 2 |
| Outside Hardness | HV 900 - 1100 |
| Surface hardening | Nitriding |

| | |
|-----------------|-------------|
| Code | EPBH |
| Material | SKH51 |
| Hardness | HRC 58 - 60 |

Angular Pins แองกูลาร์ (AP)

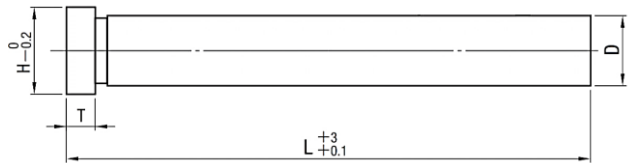


| | |
|----------|--------------|
| Code | AP |
| Material | SUJ2 / SKD11 |
| Hardness | HRC 60 ± 2 |

Order Code D x L x N x A
AP 25x200xN30xA15

| Code | D | D' | H | T | S | L | N | A |
|------|----|------------------|----|------------------|------------------|----|------------------|------------------|
| AP | 10 | +0.012 +0.006 | 10 | -0.013 -0.022 | 13 | 10 | 5 | กำหนดตามแบบลูกค้ |
| | 12 | +0.015 +0.007 | 12 | -0.016 -0.027 | 15 | | 6 | |
| | 13 | | 13 | | 6.5 | | | |
| | 15 | +0.017 +0.008 | 15 | -0.020 -0.033 | 18 | 13 | 7.5 | |
| | 16 | | 16 | | 19 | | 8 | |
| | 20 | | 20 | | 23 | 10 | | |
| | 25 | 25 | 28 | 10 | กำหนดตามแบบลูกค้ | | | |
| | 30 | 30 | 35 | 15 | | 10 | กำหนดตามแบบลูกค้ | |

Return Pins เข็มกระตุ้กลับ (RPH)

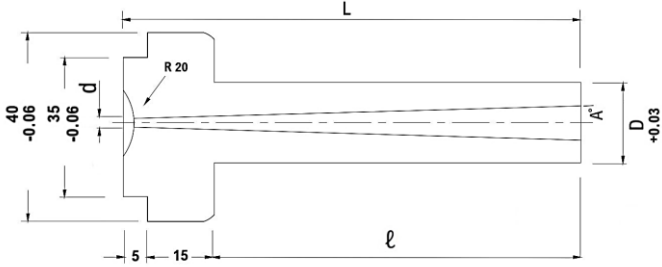


| | |
|----------|------------|
| Code | RPH |
| Material | S50C |
| Hardness | HRC 60 ± 2 |

Order Code D x L
RPH 25 x 200

| Code | D | H | T | L |
|------|----|------------------|---|-------------------------------------|
| RPH | 12 | -0.016 -0.027 | 17 | 60 80 100 150 200 |
| | 15 | | 20 | 100 150 175 200 250 300 350 |
| | 16 | | 21 | 100 150 175 200 250 300 350 400 450 |
| | 20 | -0.020 -0.033 | 25 | 100 150 200 250 300 350 400 450 |
| | 25 | | 30 | 100 150 200 250 300 350 400 450 500 |
| | 30 | 35 | 100 150 200 250 300 350 400 450 500 550 | |
| | 35 | -0.025 -0.041 | 40 | 150 200 250 300 350 400 450 500 550 |
| | 40 | | 45 | 200 250 300 350 400 450 500 550 |
| | 50 | | 55 | 200 250 300 350 400 450 500 550 |

Sprue Bushes ปาลูกน้ำจืด (SB)

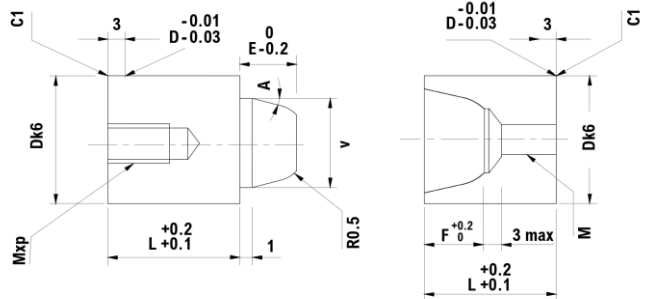


| | |
|----------|------|
| Code | SB |
| Material | S45C |

Order Code D x L
SB 16 x 100

| Code | D | L | d | A | e |
|------|-----|---------|---------|-----|-----|
| SB | 12 | 50 | 3.3+0.1 | 6 | 30 |
| | | 65 | | 4 | 45 |
| | | 80 | | 4 | 60 |
| | | 95 | 3 | 75 | |
| | | 110 | 3.5+0.1 | 3 | 90 |
| | | 140 | | 3 | 120 |
| | 16 | 50 | 3.3+0.1 | 6 | 30 |
| | | 65 | | 4 | 45 |
| | | 80 | | 4 | 60 |
| | | 90 | 3 | 70 | |
| | | 100 | 3 | 80 | |
| | | 110 | 3.5+0.1 | 3 | 90 |
| | | 120 | | 3 | 100 |
| | | 140 | | 3 | 120 |
| | | 170 | 2.3 | 150 | |
| | 20 | 50 | 3 | 3 | 30 |
| | | 65 | 3.3+0.1 | 4 | 45 |
| | | 80 | | 4 | 60 |
| 95 | | 3 | | 70 | |
| 100 | | 3 | 80 | | |
| 110 | | 3.5+0.1 | 3 | 90 | |
| 120 | | | 3 | 100 | |
| 140 | | | 3 | 120 | |
| 170 | | 2.3 | 150 | | |
| 200 | | 2.3 | 180 | | |
| 25 | 50 | 3 | 3 | 30 | |
| | 80 | 3.3+0.1 | 3 | 60 | |
| | 95 | | 3 | 75 | |
| | 110 | | 3 | 90 | |
| | 130 | 3.5+0.1 | 3 | 110 | |
| | 140 | | 3 | 120 | |
| | 170 | | 2.3 | 150 | |
| | 200 | 2.3 | 180 | | |

Taper Pin Set เทปเออร์ (TP)

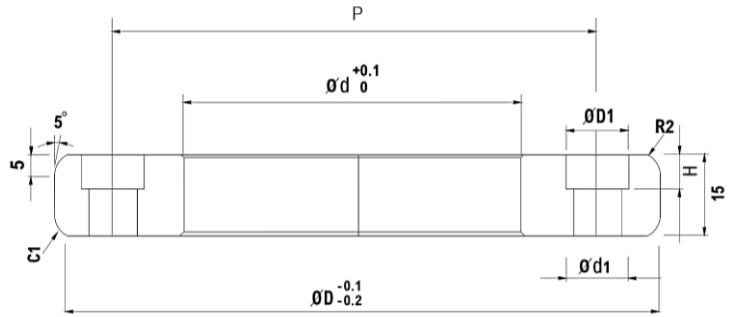


| | |
|----------|------------|
| Code | TP |
| Material | SUJ2 |
| Hardness | HRC 60 ± 2 |

Order Code D
TP 16

| Code | Dk6 | D | L | V | E | F | MxØ | A° |
|------|-----|--------|----|----|-----|----|-----|--------|
| TP | 13 | +0.012 | 13 | 14 | 8.5 | 6 | 5 | M4X10 |
| | 16 | +0.001 | 16 | 14 | 10 | 6 | 5 | M5X10 |
| | 20 | +0.015 | 20 | 19 | 13 | 9 | 8 | M6X12 |
| | 25 | | 25 | 24 | 16 | 12 | 11 | M8X16 |
| | 30 | +0.002 | 30 | 29 | 20 | 15 | 14 | M10X20 |
| | 32 | +0.018 | 32 | 29 | 20 | 15 | 14 | M10X20 |
| | 35 | | 35 | 34 | 24 | 18 | 17 | M12X24 |
| | 42 | +0.002 | 42 | 39 | 30 | 24 | 23 | M12X24 |

Locating Ring แหวนรองหัวฉัด (LRA)

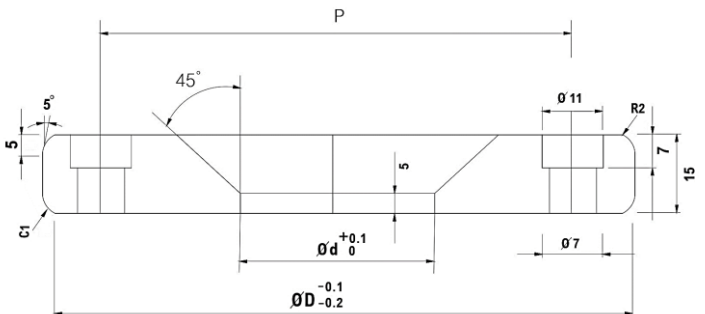


| | |
|----------|------|
| Code | LRA |
| Material | S45C |

Order Code D
LRA 60

| Code | D | d | d1 | D1 |
|------|-----|-----|-----|-----|
| LRA | 60 | 36 | 4.5 | 7.3 |
| | 100 | 70 | 7 | 11 |
| | 120 | 90 | | |
| | 150 | 110 | 9.5 | 15 |

Locating Ring แหวนรองหัวฉัด (LRB)



| | |
|----------|------|
| Code | LRB |
| Material | S45C |

Order Code D
LRB 100

| Code | D | d | P |
|------|-----|----|----|
| LRB | 100 | 36 | 85 |
| | | 50 | |
| | 120 | 36 | |
| | | 50 | |

Spring สีเขียว (DH)



| Code | OD | ID | L |
|------|----|------|--|
| DH | 8 | 4 | 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 90 |
| | 10 | 5 | 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 |
| | 12 | 6 | 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 |
| | 14 | 7 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 |
| | 16 | 8 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 |
| | 18 | 9 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 |
| | 20 | 10 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 |
| | 22 | 11 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 175 |
| | 25 | 12.5 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 175 |
| | 27 | 13.5 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 175 200 |
| | 30 | 15 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 175 200 250 |
| | 35 | 17.5 | 40 45 50 55 60 65 70 75 80 90 100 125 150 175 200 250 |
| | 40 | 20 | 40 50 60 70 80 90 100 125 150 175 200 250 275 300 |
| | 50 | 25 | 50 60 70 80 90 100 125 150 175 200 250 275 300 350 |
| | 60 | 30 | 60 70 80 90 100 125 150 175 200 250 275 300 350 400 |

Spring สีน้ำตาล (DB)



| Code | OD | ID | L |
|------|----|------|--|
| DB | 8 | 4 | 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 90 |
| | 10 | 5 | 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 |
| | 12 | 6 | 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 |
| | 14 | 7 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 |
| | 16 | 8 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 |
| | 18 | 9 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 |
| | 20 | 10 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 |
| | 22 | 11 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 175 |
| | 25 | 12.5 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 175 |
| | 27 | 13.5 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 175 200 |
| | 30 | 15 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150 175 200 250 |
| | 35 | 17.5 | 40 45 50 55 60 65 70 75 80 90 100 125 150 175 200 250 |
| | 40 | 20 | 40 50 60 70 80 90 100 125 150 175 200 250 275 300 |
| | 50 | 25 | 50 60 70 80 90 100 125 150 175 200 250 275 300 350 |
| | 60 | 30 | 60 70 80 90 100 125 150 175 200 250 275 300 350 400 |

Spring สีขาว (TR)

Order Code OD x L
TR 32 x 100



| Code | OD | ID | L | | | | | | | | | | | | | | | |
|------|------|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| TR | 14.5 | 9 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 |
| | 17 | 11 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 | |
| | 21 | 13 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 | 150 | |
| | 26 | 17 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 | 150 | |
| | 32 | 21 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | | | | | | |
| | 39 | 26 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | 175 | 200 | | | | |
| 46 | 32 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | 175 | 200 | 250 | | | | |

Spring สีม่วง (TY)



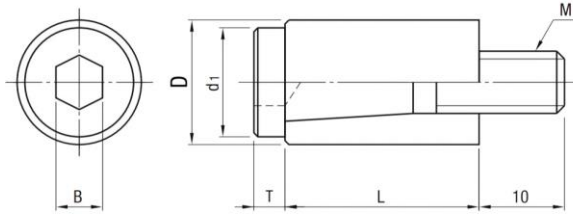
| Code | OD | ID | L | | | | | | | | | | | | | | | |
|------|------|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| TY | 14.5 | 9 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 |
| | 17 | 11 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 | |
| | 21 | 13 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 | 150 | |
| | 26 | 17 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 | 150 | |
| | 32 | 21 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | | | | | | |
| | 39 | 26 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | 175 | 200 | | | | |
| 46 | 32 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | 175 | 200 | 250 | | | | |

Spring สีเขียวอ่อน (MRS)



| Code | OD | ID | L | | | | | | | | | | | | | | | |
|------|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| MRS | 17 | 11 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 125 | 150 |
| | 21 | 14 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 110 | 125 | 150 |
| | 26 | 17 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 90 | 100 | 110 | 125 | 150 |
| | 31 | 21 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | | | | | | |
| | 39 | 26 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | 175 | 200 | | | | |
| | 46 | 32 | 40 | 50 | 60 | 70 | 80 | 90 | 100 | 110 | 125 | 150 | 175 | 200 | 250 | | | |

Parting Locks ชุดล็อกแม่พิมพ์ (PL, PLO)



| | |
|----------|----------|
| Code | PL / PLO |
| Material | SCM435 |

**Order Code D
PL 12**

| Code | D | d1 | M | B | T | L | Color |
|------|----|------|----|---|-----|----|--------|
| PL | 10 | 8.5 | 5 | 4 | 3 | 18 | Yellow |
| | 12 | 11.5 | 6 | 5 | 4.5 | 20 | |
| | 13 | 11.5 | 6 | 5 | 4.5 | 20 | |
| | 16 | 14 | 8 | 6 | 4.5 | 25 | |
| | 20 | 16 | 10 | 8 | 5.5 | 30 | |
| PLO | 13 | 11.5 | 6 | 5 | 4.5 | 20 | Orange |
| | 16 | 14 | 8 | 6 | 4.5 | 25 | |
| | 20 | 14 | 8 | 6 | 4.5 | 25 | |

Cooling Plugs ตัวอุดรูน้ำ (CL)

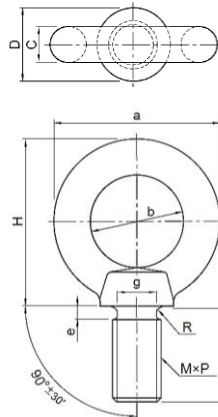


| | |
|----------|-------------|
| Code | CL |
| Material | BRASS C3604 |

**Order Code D
CL 12**

| D | 6 | 8 | 10 | 12 | 14 | 16 | 20 | 25 | 30 |
|---|----|----|----|----|----|----|----|----|----|
| L | 10 | 10 | 11 | 12 | 13 | 14 | 18 | 19 | 19 |

Eye Bolts (CHI)

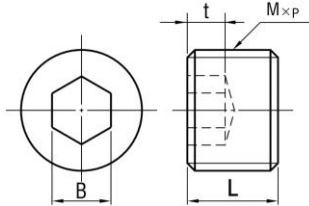


| | |
|----------|-------|
| Code | CHI |
| Material | SS400 |

**Order Code M
CHI M10**

| Code | M | M x p | a | b | c | D | H | φ | e | g | R | A Type N(kgf)/1P | B Type N(kgf)/2P |
|------|----------|-----------|-----|----|------|-----|-------|----|----|------|-------------|---------------------|---------------------|
| CHI | 10 | 10 x 1.5 | 41 | 25 | 8 | 20 | 41.5 | 18 | 4 | 7.7 | 1.2 | 1471(150) | 1471(150) |
| | 12 | 12 x 1.75 | 50 | 30 | 10 | 25 | 51 | 22 | 5 | 9.4 | 1.4 | 2157(220) | 2157(220) |
| | 16 | 16 x 2.0 | 60 | 35 | 12.5 | 30 | 60 | 27 | 5 | 13 | 1.6 | 4413(450) | 4413(450) |
| | 20 | 20 x 2.5 | 72 | 40 | 16 | 45 | 71 | 30 | 6 | 16.4 | 2 | 6178(630) | 6178(630) |
| | 24 | 24 x 3.0 | 90 | 50 | 20 | 45 | 90 | 38 | 8 | 19.6 | 2.5 | 9316(950) | 9316(950) |
| | 30 | 30 x 3.5 | 110 | 60 | 25 | 60 | 110 | 45 | 8 | 25 | 3 | 14710(1500) | 14710(1500) |
| | 36 | 36 x 4.0 | 133 | 70 | 31.5 | 70 | 131.5 | 55 | 10 | 30.3 | 3 | 22555(2300) | 22555(2300) |
| | 42 | 42 x 4.5 | 151 | 80 | 35.5 | 80 | 150.5 | 65 | 12 | 35.6 | 3.5 | 33342(3400) | 33342(3400) |
| 48 | 48 x 5.0 | 170 | 90 | 40 | 90 | 170 | 70 | 12 | 41 | 4 | 44130(4500) | 44130(4500) | |

Screw Plugs (MSW)

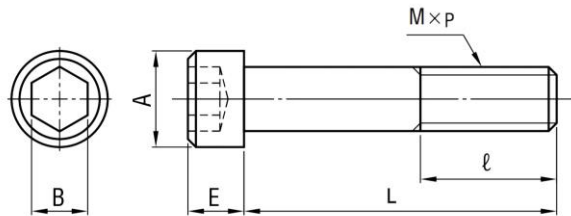


| | |
|----------|--------|
| Code | MSW |
| Material | SCM435 |

Order Code M
MSW M10

| Code | M | M x p | L | t | B | | |
|------|-----|-------|------|----|-----|-----|----|
| MSW | 2.5 | 2.5 | 0.45 | 3 | 1.2 | 1.3 | |
| | 3 | 3 | 0.5 | 3 | 1.2 | 1.5 | |
| | 4 | 4 | 0.7 | 4 | 1.5 | 2 | |
| | 5 | 5 | 0.8 | 5 | 2 | 2.5 | |
| | 6 | 6 | 1 | 6 | 2 | 3 | |
| | 8 | 8 | 1.25 | 8 | 3 | 4 | |
| | 10 | 10 | 1.5 | 10 | 4 | 5 | |
| | 12 | 12 | | | 6 | 5 | 6 |
| | 14 | 14 | | | | 8 | 10 |
| | 16 | 16 | | | | 10 | 10 |
| | 18 | 18 | | | | 12 | 12 |
| | 20 | 20 | 12 | 6 | | 14 | |
| | 22 | 22 | | | | | |
| | 24 | 24 | | | | | |
| | 25 | 25 | | | | | |
| | 26 | 26 | | | | | |
| | 27 | 27 | | | | | |
| | 28 | 28 | | | | | |
| | 30 | 30 | | | | | |
| | 33 | 33 | | | | | |
| | 36 | 36 | | | | | |
| | 38 | 38 | | | | | |
| | 40 | 40 | | | | | |
| | 42 | 42 | | | | | |
| | 45 | 45 | | | | | |

Socket Head Cap Screw สกรูหัวจม (CB)

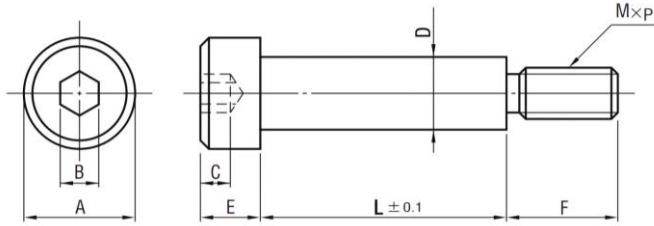


| | |
|----------|-----------|
| Code | CB |
| Material | SCM435 |
| Hardness | HRC 38-43 |

Order Code M x L
CB M3 x 50

| Code | M | M x p | L |
|------|----|-----------|--|
| CB | 3 | 3 x 0.5 | 6 8 10 12 16 20 25 30 35 40 45 50 |
| | 4 | 4 x 0.7 | 6 8 10 12 16 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 110 |
| | 5 | 5 x 0.8 | 6 8 10 12 16 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 |
| | 6 | 6 x 1.0 | 10 12 16 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 |
| | 8 | 8 x 1.25 | 10 12 16 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 |
| | 10 | 10 x 1.5 | 16 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 160 170 180 190 200 |
| | 12 | 12 x 1.75 | 16 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 |
| | 14 | 14 x 2.0 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 160 170 180 190 200 |
| | 16 | 16 x 2.0 | 25 30 35 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 300 |
| | 20 | 20 x 2.5 | 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 300 |
| | 22 | 22 x 2.5 | 40 45 50 55 60 65 70 75 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 300 |
| | 24 | 24 x 3.0 | 50 60 70 75 80 90 100 120 140 150 160 170 180 190 200 210 220 230 240 250 300 |
| | 30 | 30 x 3.5 | 50 60 70 80 90 100 120 140 150 160 170 180 190 200 230 250 300 |
| | 36 | 36 x 4.0 | 80 90 100 120 140 150 160 170 180 190 200 230 250 300 |

Stripper Bolts (MSB)

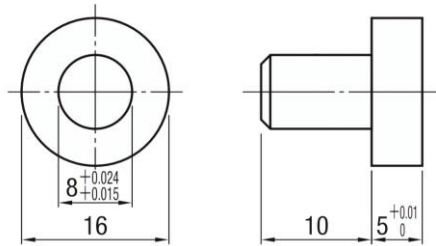


| | |
|-----------------|--------|
| Code | MSB |
| Material | SCM435 |

Order Code D x L
MSB 4.5 x 50

| Code | De9 | A | B | C | E | F | M x p | L | |
|------|-----|--------|---|-----|-----|----|-------|-----------|--|
| MSB | 4.5 | -0.020 | 7 | 2.5 | 1.6 | 3 | 6 | 3 x 0.5 | 10 15 20 25 30 35 40 |
| | 5.5 | -0.050 | 9 | 3 | 2.2 | 4 | 7 | 4 x 0.7 | 10 15 20 25 30 35 40 45 50 |
| | 6.5 | -0.025 | 10 | 4 | 2.5 | 5 | 9 | 5 x 0.8 | 10 15 20 25 30 35 40 45 50 55 60 65 70 |
| | 8 | -0.061 | 13 | 5 | 3 | 6 | 9 | 6 x 1 | 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 |
| | 10 | -0.032 | 16 | 6 | 4 | 8 | 12 | 8 x 1.25 | 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120 |
| | 12 | | 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 | | | | | | |
| | 13 | -0.075 | 18 | 8 | 5 | 10 | 16 | 10 x 1.5 | 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120 130 |
| | 16 | -0.040 | 24 | 10 | 7 | 14 | 18 | 12 x 1.75 | 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120 130 140 150 |
| | 20 | -0.092 | 27 | 14 | 9 | 18 | 24 | 16 x 2.0 | 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120 130 140 150 |

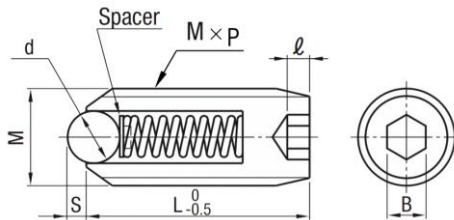
Stop Pins (STP)



| | |
|-----------------|------|
| Code | STP |
| Material | S45C |

Order Code
STP

Ball Plungers (BPJ, BSJ)

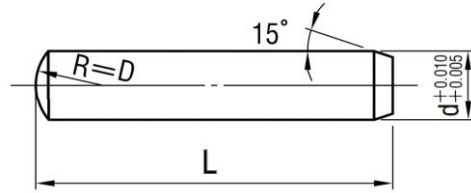


| | |
|-----------------|-----------------|
| Code | BPJ / BSJ |
| Material | SCM435 / SUS304 |

Order Code M
BPJ M4

| Code | M | M x p | d | S | B | L |
|------------|-----|-----------|-----|-----|-----|----|
| BPJ BSJ | M4 | 4 x 0.7 | 2.5 | 1 | 2 | 9 |
| | M5 | 5 x 0.8 | 3 | 1 | 2.5 | 12 |
| | M6 | 6 x 1.0 | 3.5 | 1.2 | 3 | 13 |
| | M8 | 8 x 1.25 | 5 | 1.8 | 4 | 15 |
| | M10 | 10 x 1.5 | 6 | 2 | 5 | 16 |
| | M12 | 12 x 1.75 | 8 | 3 | 6 | 20 |
| | M16 | 16 x 2.0 | 9.5 | 3 | 8 | 25 |

Dowel Pins แบบตัน (DPS)

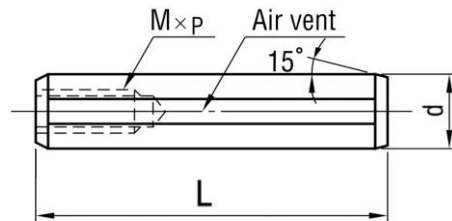


| | |
|----------|--------|
| Code | DPS |
| Material | SUJ2 |
| Hardness | HRC 58 |

Order Code d x L
DPS 6 x 25

| Code | d | L |
|------|----------------------------------|-------------------------------------|
| DPS | 3 | 10 15 20 25 30 35 40 |
| | 4 | 10 15 20 25 30 35 40 45 50 |
| | 5 | 10 15 20 25 30 35 40 45 50 |
| | 6 | 10 15 20 25 30 35 40 45 50 55 60 |
| | 8 | 15 20 25 30 35 40 45 50 55 60 70 |
| | 10 | 15 20 25 30 35 40 45 50 55 60 70 80 |
| 12 | 20 25 30 35 40 45 50 55 60 70 80 | |

Dowel Pins แบบมีเกลียว (DPT)



| | |
|----------|--------|
| Code | DPT |
| Material | SUJ2 |
| Hardness | HRC 58 |

Order Code d x L
DPT 6 x 25

| Code | M x p | d | L |
|----------|----------|-------------|-------------------------------------|
| DPT | 4 x 0.7 | 6 | 15 20 25 30 35 40 45 50 |
| | 5 x 0.8 | 8 | 15 20 25 30 35 40 45 50 55 60 70 80 |
| | 6 x 1.0 | 10 | 20 25 30 35 40 45 50 55 60 70 80 |
| | | 12 | 20 25 30 35 40 45 50 55 60 70 80 |
| | 8 x 1.25 | 13 | 40 50 60 70 80 |
| | | 16 | 40 50 60 70 80 |
| 10 x 1.5 | 20 | 50 60 70 80 | |

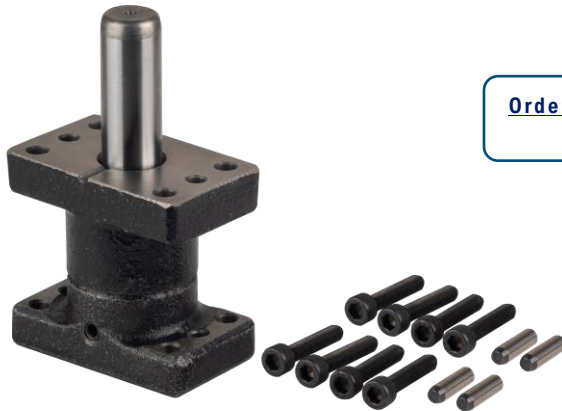
Guide Post (GPS)



Order Code d x L
GPS 20 x 100

| Code | d | L |
|------|-----|---|
| GPS | 20 | 80 90 100 110 120 130 140 150 |
| | 25 | 80 90 100 110 120 130 140 150 160 170 180 200 |
| | 32 | 100 110 120 130 140 150 160 170 180 200 220 250 |
| | 38 | 120 130 140 150 160 170 180 200 220 250 280 300 |
| | 50 | 160 170 180 200 220 250 280 300 350 |
| | 60 | 180 200 220 250 280 300 350 400 |
| | 80 | 250 280 300 350 400 450 |
| | 100 | 300 350 400 450 500 |

Guide Post (GPSP)



Order Code d x L
GPSP 20 x 100

| Code | d | L |
|------|-----|---|
| GPSP | 20 | 80 90 100 110 120 130 140 150 |
| | 25 | 80 90 100 110 120 130 140 150 160 170 180 200 |
| | 32 | 100 110 120 130 140 150 160 170 180 200 220 250 |
| | 38 | 120 130 140 150 160 170 180 200 220 250 280 300 |
| | 50 | 160 170 180 200 220 250 280 300 350 |
| | 60 | 180 200 220 250 280 300 350 400 |
| | 80 | 250 280 300 350 400 450 |
| | 100 | 300 350 400 450 500 |

Guide Post (GPSB)



Order Code d x L
GPSB 20 x 100

| Code | d | L |
|------|----|---|
| GPSB | 20 | 90 100 110 120 130 140 150 160 |
| | 25 | 90 100 110 120 130 140 150 160 170 180 200 |
| | 32 | 110 120 130 140 150 160 170 180 200 220 240 250 260 |
| | 38 | 130 140 150 160 170 180 200 220 240 250 260 280 300 |
| | 50 | 170 180 200 220 240 250 260 280 300 350 |

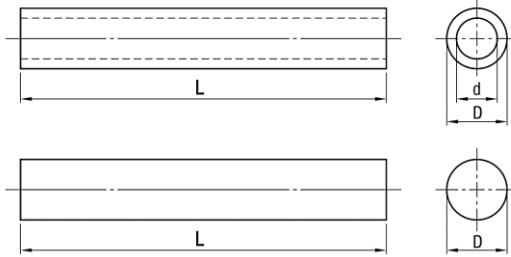
Guide Post (GPBP)



Order Code d x L
GPBP 20 x 100

| Code | d | L |
|------|----|---|
| GPBP | 20 | 90 100 110 120 130 140 150 160 |
| | 25 | 90 100 110 120 130 140 150 160 170 180 200 |
| | 32 | 110 120 130 140 150 160 170 180 200 220 240 250 260 |
| | 38 | 130 140 150 160 170 180 200 220 240 250 260 280 300 |
| | 50 | 170 180 200 220 240 250 260 280 300 350 |

Urethane สีเหลือง ดัน (URY), มีรู (URYD)



Order Code d x L
URY 20 x 300



| Code | D | L |
|------|----|-----|
| URY | 10 | 250 |
| | 15 | |
| | 15 | 300 |
| | 20 | 500 |
| | 25 | 300 |
| | 25 | 500 |
| | 30 | |
| | 40 | |
| | 50 | |
| | 60 | |
| 80 | | |

| Code | D | d | L |
|------|-----|-----|-----|
| URYD | 15 | 7 | 300 |
| | 20 | 8.5 | |
| | 25 | 11 | |
| | 30 | 14 | 500 |
| | 40 | | |
| | 50 | | |
| | 60 | | |
| | 80 | 22 | |
| | 100 | | |

Urethane สีดำ ดัน (URB), มีรู (URBD)

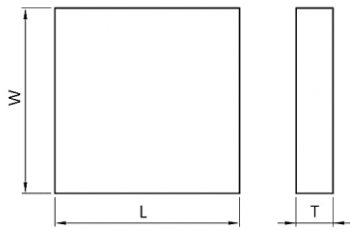


| Code | D | L |
|------|----|-----|
| URB | 15 | 300 |
| | 20 | 500 |
| | 25 | |
| | 30 | |
| | 40 | |
| | 50 | |
| | 60 | |
| | 80 | |

| Code | D | d | L |
|------|-----|-----|-----|
| URBD | 15 | 7 | 300 |
| | 20 | 8.5 | |
| | 25 | 11 | |
| | 30 | 14 | 500 |
| | 40 | | |
| | 50 | | |
| | 60 | | |
| | 80 | 22 | |
| | 100 | | |

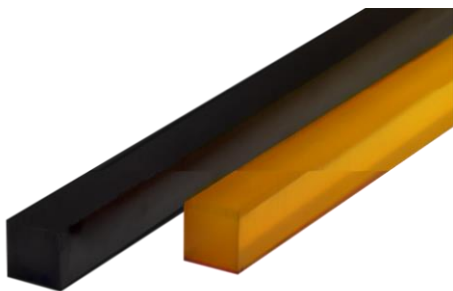
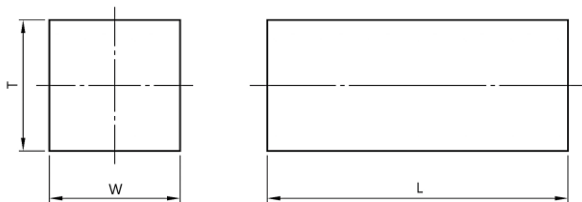
Urethane แผ่น สีเหลือง (URYW), สีดำ (URBW)

Order Code d x L
URYW 20 x 300



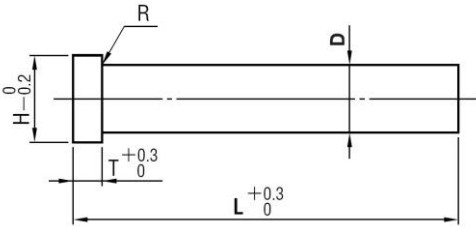
| Code | T | W | L |
|--------------|-----|-----|-----|
| URYW URBW | 5 | 300 | 300 |
| | 10 | | |
| | 15 | | |
| | 20 | | |
| | 25 | | |
| | 30 | | |
| | 35 | | |
| | 40 | | |
| | 50 | | |
| | 60 | | |
| URYW URBW | 70 | 500 | 500 |
| | 80 | | |
| | 100 | | |
| | 8 | | |
| | 10 | | |
| | 15 | | |
| | 20 | | |
| | 25 | | |
| 30 | | | |
| 40 | | | |
| 50 | | | |

Urethane แท่ง สีเหลือง (URYT), สีดำ (URBT)



| Code | T | W | L |
|--------------|----|----|-----|
| URYT URBT | 25 | 25 | 300 |
| | | | 500 |
| | 50 | 50 | 300 |
| | | | 500 |
| | 50 | 75 | 300 |
| | | | 500 |

Straight Punch พืนซ์ดง (PD)

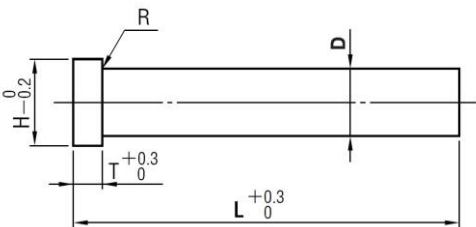


| | |
|----------|-----------|
| Code | PD |
| Material | SKD11 |
| Hardness | HRC 60-62 |

Order Code d x L
PD 10 x 100

| Code | D | H | L |
|------|-----|-----|-----------------------|
| PD | 1 | 2 | 40 50 60 70 80 90 100 |
| | 1.5 | 3 | |
| | 2 | 4 | |
| | 2.5 | 4.5 | |
| | 3 | 5 | |
| | 3.5 | 5.5 | |
| | 4 | 7 | |
| | 4.5 | 6.5 | |
| | 5 | 8 | |
| | 5.5 | 7.5 | |
| | 6 | 9 | |
| | 6.5 | 8.5 | |
| | 7 | 10 | |
| | 8 | 11 | |
| | 9 | 12 | |
| | 10 | 13 | |
| | 11 | 14 | |
| | 12 | 15 | |
| | 13 | 16 | |
| | 14 | 17 | |
| | 15 | 18 | |
| | 16 | 19 | |
| | 18 | 21 | |
| | 20 | 23 | |
| | 25 | 28 | |

Straight Punch พืนซ์ดง (PH)



| | |
|----------|-----------|
| Code | PH |
| Material | SKH51 |
| Hardness | HRC 61-64 |

Order Code d x L
PH 10 x 100

| Code | D | H | L |
|------|-----|-----|-----------------------|
| PH | 1 | 2 | 40 50 60 |
| | 1.5 | 3 | 40 50 60 |
| | 2 | 4 | 40 50 60 70 80 |
| | 2.5 | 4.5 | |
| | 3 | 5 | |
| | 3.5 | 5.5 | |
| | 4 | 7 | |
| | 4.5 | 6.5 | 40 50 60 70 80 90 100 |
| | 5 | 8 | |
| | 5.5 | 7.5 | |
| | 6 | 9 | |
| | 6.5 | 8.5 | |
| | 7 | 10 | |
| | 8 | 11 | |
| | 9 | 12 | |
| | 10 | 13 | |
| | 11 | 14 | |
| | 12 | 15 | |
| | 13 | 16 | |
| | 14 | 17 | |
| | 15 | 18 | |
| | 16 | 19 | |
| | 18 | 21 | |
| | 20 | 23 | |
| | 25 | 28 | |

Shim Plate (CS, SS)

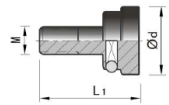
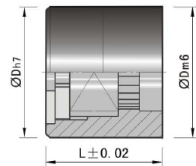
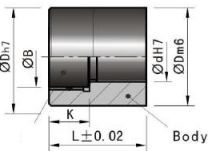
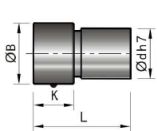


| Code | SS |
|----------|-----------------|
| Material | Stainless Steel |

| Code | d | 12.7mm 2m | 12.7mm 5m | 50mm 5m | 100mm 5m | 150mm 5m | 300mm 1m |
|------|-------|--------------|--------------|------------|-------------|-------------|-------------|
| SS | 0.005 | • | • | | | | |
| | 0.01 | • | • | • | • | | |
| | 0.02 | • | • | • | • | | |
| | 0.03 | | • | • | • | | • |
| | 0.04 | | • | • | • | | • |
| | 0.05 | | • | • | • | • | • |
| | 0.06 | | • | | • | | • |
| | 0.07 | | • | | | | • |
| | 0.08 | | • | | | | • |
| | 0.09 | | • | | | | • |
| | 0.10 | | • | • | • | • | • |
| | 0.15 | | • | • | • | | |
| | 0.20 | | • | • | • | • | • |
| | 0.25 | | • | | • | | • |
| | 0.30 | | • | • | • | • | • |
| | 0.40 | | • | | • | • | • |
| | 0.50 | | • | | • | • | • |
| | 0.60 | | • | | | | • |
| | 0.70 | | • | | | | |
| | 0.80 | | • | | | | • |
| 0.90 | | • | | | | | |
| 1.00 | | • | | | | • | |

| Code | CS | | |
|----------|--------------|--------------|------------|
| Material | Carbon Steel | | |
| Code | d | 12.7mm 2m | 50mm 5m |
| CS | 0.01 | • | |
| | 0.02 | • | |
| | 0.03 | • | • |
| | 0.04 | • | |
| | 0.05 | • | • |
| | 0.06 | • | • |
| | 0.07 | • | • |
| | 0.08 | • | • |
| | 0.09 | • | • |
| | 0.10 | • | • |
| | 0.12 | • | • |
| | 0.15 | • | • |
| | 0.18 | • | • |
| | 0.20 | • | • |
| | 0.25 | • | • |
| | 0.30 | • | • |
| | 0.40 | • | • |
| | 0.50 | • | • |
| | 0.60 | • | • |
| | 0.70 | • | • |
| 0.80 | • | • | |
| 0.90 | • | • | |
| 1.00 | • | • | |

Date Marked Pin Sets ตัวชี้บอกวันที่ (DT_, DT_X)



| Code | D | d | L |
|------|----|-----|----|
| DT_ | 4 | 1.9 | 8 |
| | 5 | 2.3 | 8 |
| | 6 | 2.8 | 8 |
| | 8 | 4 | 10 |
| | 10 | 5 | 12 |
| | 16 | 10 | 14 |
| 20 | 12 | 16 | |

| Code | D | d | L | M |
|------|----|------|----|-------------|
| DT_X | 4 | 2.4 | 8 | M1.6 x 0.20 |
| | 5 | 2.9 | | |
| | 6 | 3.7 | | |
| | 8 | 5 | 10 | M2.3 x 0.25 |
| | 10 | 6.3 | 12 | M2.5 x 0.35 |
| | 12 | 7.5 | 14 | M3.0 x 0.35 |
| | 16 | 11 | | |
| | 20 | 13.2 | 16 | M4.0 x 0.35 |

| Type | Year | Year | Month | Days (0-3) | Days (0-9) | Arrow |
|-------------|----------|------|-------|------------|------------|-------|
| | Standard | | | | | |
| Replaceable | DTX | DTSX | DTDX | DTFX | DTEX | DTNX |

Mold Counter ตัวนับจำนวนแม่พิมพ์ (CVPL, CVR)



| Code | Bolt |
|----------|-----------|
| CVPL-100 | #8-32x1 |
| CVPL-200 | M4x0.7x25 |

| Code |
|------|
| CVR |

Hardness Tester เครื่องมือทดสอบความแข็ง



規格表 STANDARD TABLE

| | | | ITEM No. | |
|------|------|----------|----------|----------|
| L mm | W mm | kg-1 set | | |
| 175L | 65φ | φ 4.3 | 0.23 | MA 00600 |

| 色 COLOR | 表示 INDICATION | テスターの実硬表 FILE-HARDNESS | |
|----------------|------------------|---------------------------|------------|
| 赤 RED | HRC 40 | HRC 40~42 | HV 392~412 |
| 黄 YELLOW | HRC 45 | HRC 45~47 | HV 446~471 |
| 黄緑 LIGHT-GREEN | HRC 50 | HRC 50~52 | HV 513~544 |
| 緑 GREEN | HRC 55 | HRC 55~57 | HV 595~633 |
| 青 BLUE | HRC 60 | HRC 60~62 | HV 697~746 |
| 黒 BLACK | HRC 65 | HRC 65~67 | HV 800~865 |

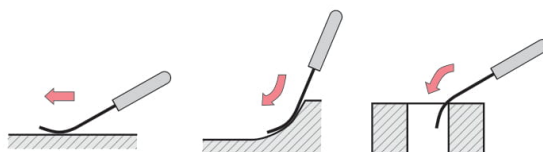
※ 表示硬度はHRCで2度上方への誤差を含みます。

※ Each indicated No. has the allowance at the rate of HRC2 highy

Material : SKS-8 (JIS)

Use : This new innovative file set provides a quick, inexpensive and simple way to check material hardness. No need to bring the material to be tested over to a hardness testing machine : Just bring this file set (6 files from 40 to 65 HRC) to the piece to be tested. Follow these simple steps to test your material :

1. Start with the BLACK handle file (65 HRC) and run the file over the test material. If it marks the material, the material is less than 65 HRC.
2. Try the BLUE handle file (60 HRC) : If it does not mark the material, the file is softer than the material. In this case the material is between 60 and 65 HRC.
3. If the BLUE handle file (60 HRC) did mark the material, simply try the GREEN file (55 HRC) , the LIGHT-GREEN handle file (50 HRC) , and continue until the material is not marked. The approximate hardness of the material is between the file that marks the material and the file that slips over the material.



Linear Shaft (SUJ2)



| | |
|---------------|-----------------------------------|
| D (mm) | 8, 10, 12, 16, 20, 25, 30, 40, 50 |
| L (mm) | 100 - 2000 |

| เทียบเกรด Equivalent | | | ส่วนผสมทางเคมี (Chemical Composition) | | | | Hardness |
|----------------------|---------|--------|---------------------------------------|-----------|-------|-----------|-----------|
| JIS | AISI | DIN | C | Si | Mn | Cr | HRC 63-65 |
| SUJ2 | E521000 | 1.3505 | 0.95-1.10 | 0.15-0.30 | ≤0.25 | 1.30-1.60 | |

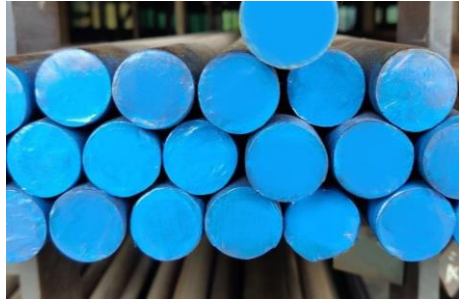
Silver Steel Rod เหล็กเพลานีออน (SK4)



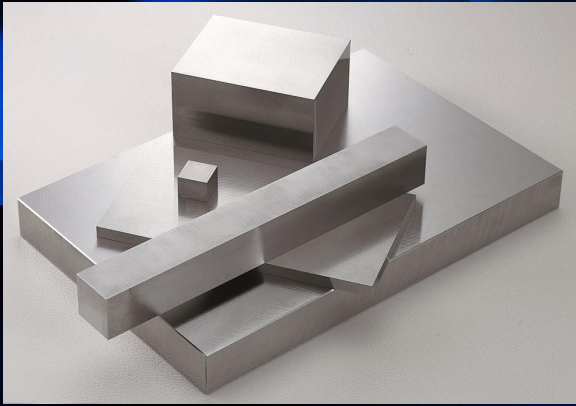
| เทียบเกรด Equivalent | | | ส่วนผสมทางเคมี (Chemical Composition) | | | | | Hardness |
|----------------------|------|-------|---------------------------------------|-------|-----------|-------|-------|----------|
| JIS | AISI | ASSAB | C | Si | Mn | Ni | Cr | HRC 13 |
| SK4 | 1095 | DF2 | 0.9-1.00 | ≤0.35 | 0.60-0.85 | ≤0.25 | ≤0.20 | |

| D | L | Price | D | L | Price | D | L | Price |
|-----|------|-------|------|------|-------|----|------|-------|
| 1.5 | 2000 | | 9 | 2000 | | 20 | 2000 | |
| 2 | | | 10 | | | 22 | | |
| 2.5 | | | 11 | | | 24 | | |
| 3 | | | 12 | | | 25 | | |
| 3.5 | | | 12.7 | | | 28 | | |
| 4 | | | 14 | | | 30 | | |
| 4.5 | | | 15 | | | 32 | | |
| 5 | | | 16 | | | 35 | | |
| 6 | | | 17 | | | 40 | | |
| 7 | | | 18 | | | 45 | | |
| 8 | | 19 | | 50 | | | | |

Steel เหล็ก



| ประเภทเหล็ก Type | เทียบเกรดมาตรฐาน Standard Comparison | | | | ส่วนผสม(%) Chemical Composition | | | | | | | ความแข็ง (Hardness) สภาพจำหน่าย |
|--|---|---------------------|---------|--------|------------------------------------|--------------|----------------|--------------|--------------|----------------|--------------|---------------------------------------|
| | CODE | JIS | AISI | DIN | C | Si | Mn | Ni | Cr | Mo | V | |
| เหล็กกล้างานเย็น Cold Work Tool Steel | SKD11 | SKD11 (modified) | - | - | 1.1 | 0.95 | 0.6 max | 0.1 | 10.0 | 1.5 | 0.05 | 225 HB MAX |
| | | SKD11 | D2 | 1.2379 | 1.4 1.6 | 0.4 max | 0.6 max | - | 11.0 13.0 | 0.8 1.2 | 0.2 0.5 | 220 HB MAX |
| เหล็กกล้างานร้อน Hot Work Tool Steel | SKD61 | SKD61 | H13 | 1.2344 | 0.32 0.42 | 0.80 1.20 | 0.5 max | - | 4.50 5.50 | 1.00 1.50 | 0.80 1.20 | 229 HB MAX |
| เหล็กทำแม่พิมพ์พลาสติก Plastic Mould Steel | P20 | - | P20 | 1.2311 | 0.35 0.45 | 0.2 0.4 | 1.3 1.6 | - | 1.8 2.1 | 0.15 0.25 | - | 30-33 HRC |
| | P21 | - | P21 | 1.2312 | 0.115 0.145 | 0.01 max | 1.375 1.625 | 2.92 3.15 | - | 0.275 0.370 | - | 37-43 HRC |
| เหล็กกล้าคาร์บอน Carbon Steel | S45C | S45C | C1045 | CK45 | 0.42 0.48 | 0.15 0.35 | 0.60 0.90 | - | - | - | - | 167-229 HB |
| | S50C | S50C | C1049 | CK50 | 0.47 0.53 | 0.15 0.35 | 0.60 0.90 | - | - | - | - | 179-235 HB |
| เหล็กกล้าผสม Ni-Cr-Mo Low Alloy Steel | SCM440 | SCM440 | 4140 | 1.7225 | 0.38 0.43 | 0.15 0.35 | 0.60 0.85 | - | 0.90 1.20 | 0.15 0.30 | - | 255 HB MAX |
| | SCM415 | SCM415 | 4118 | 1.7218 | 0.13 0.18 | 0.15 0.35 | 0.60 0.85 | - | 0.90 1.20 | 0.15 0.30 | - | 207 HB MAX |
| เหล็กเหนียว Mild Steel | SS41 | SS400 (SS41) | | | 0.13 0.18 | 0.15 0.35 | 0.5 0.7 | - | - | - | - | 116-152 HB |
| เหล็กเส้นเจียรนัยผิว High Carbon Tool Steel | SK4F | SK4 | 1095 | - | 0.9 1.0 | 0.35 max | 0.60 0.85 | 0.25 max | 0.20 max | - | - | 13 HRC |
| เหล็กแข็งลูกปืน Bearing Steel | SUJ2 | SUJ2 | E521000 | 1.3505 | 0.95 1.10 | 0.15 0.30 | 0.25 max | - | 1.30 1.60 | - | - | 63-65 HRC |



จำหน่ายเหล็กปาดเจียร **Finishing Plate**
เกรด SS400, S50C, SKD11, P20



จำหน่าย **Aluminium, Stainless,
Brass, Copper**



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