

# AIR WINCHES

Product Guidebook

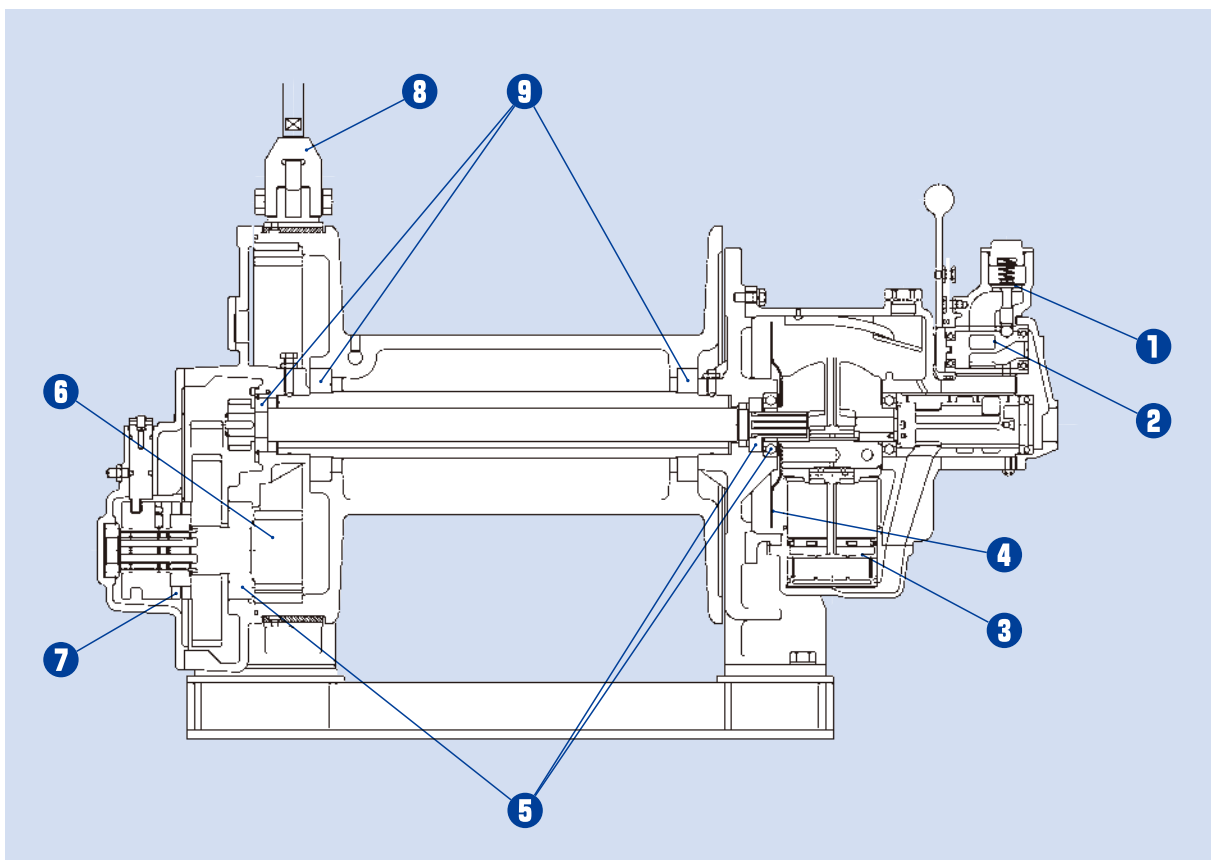


# BENEFITS and FEATURES

Our long term experiences and excellent techniques gave a birth to epoch-making Air Winches. Versatile San-Ei's Models have been widely used in metal mining, construction, shipbuilding, heavy machinery manufacturing, chemicals and other industries.

## Every users have been selecting ours with the following benefits and features

- ▶ Easy operation [ Control Lever only ] and Safe mechanism [ Brake ] are designed.
- ▶ Compact light weight can be moved quickly from one location to another.
- ▶ Dusty environment is acceptable for use.
- ▶ No sparks are generated.
- ▶ No damage with overheat occurs even for overload.
- ▶ Continuous operation at full capacity is available.
- ▶ Drum diameter is large enough to prolong life of rope.



- 1 POPPET/SPOOL VALVE** is used for the control valve to eliminate air leakage.
- 2 Reverse revolution** is available. **VALVE HANDLE** operation allows free handling of the load, as air flows into the control valve.
- 3 Strong RADIAL PISTON AIR MOTR is built in.**
- 4 OIL DISC** in the **SEALED CRANK CASE** contains oil bath lubricates all sliding parts.
- 5 BALL/ROLLER BEARINGS** minimize friction loss.
- 6 Set-up reduction ratio** works on rope pull and rope speed.
- 7 CLAW CLUTCH** mechanism allows safe, accurate handling in locked ON/OFF positions.
- 8 BAND BRAKE manual or automatic.**
- 9 SEALED BALL BEARINGS** completely prevent oil leakage from the casings.

<b>Air motor</b>	Cast iron	<b>Reducer</b>	Chromium molybdenum steel(SCM435) Carbon steel(S45C)	<b>Drum</b>	Cast iron	<b>Bed</b>	Cast iron or SS material
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## SPECIFICATIONS

Max. output figures are shown with supply air pressure at 0.6 MPa.

MODEL		W-05	W-10	W-20	W-30	W-50
Motor output (kW)		1.73	7.15	7.15	12.00	12.00
Reduction Ratio		40.6	17.3	34.2	35.6	72.99
ROPE PULL (ton)		0.5	1	2	3	5
ROPE SPEED (m/min)		19	37	19	19	11
Air consumption(Nm <sup>3</sup> /min)		2.0	5.4	5.4	9.0	9.0
Drum capacity	Short drum (ømm. x m)	8 x 45	10.0 x 175 12.5 x 115	12.5 x 115	16 x 160	22.4 x 115
	Long drum (ømm. x m)	8 x 90	10.0 x 350 12.5 x 230	12.5 x 230	16 x 320	22.4 x 230
Weight Manual Brake	Short drum (kg.)	55	257	266	470	—
	Long drum (kg.)	60	276	287	513	850
Weight Automatic Brake	Short drum (kg.)	59	267	276	513	780
	Long drum (kg.)	64	288	297	527	873

### Air compressor

should be capable of supplying air pressure(at 0.6 MPa)covering 130 more than air consumption, in case of continuous operation.

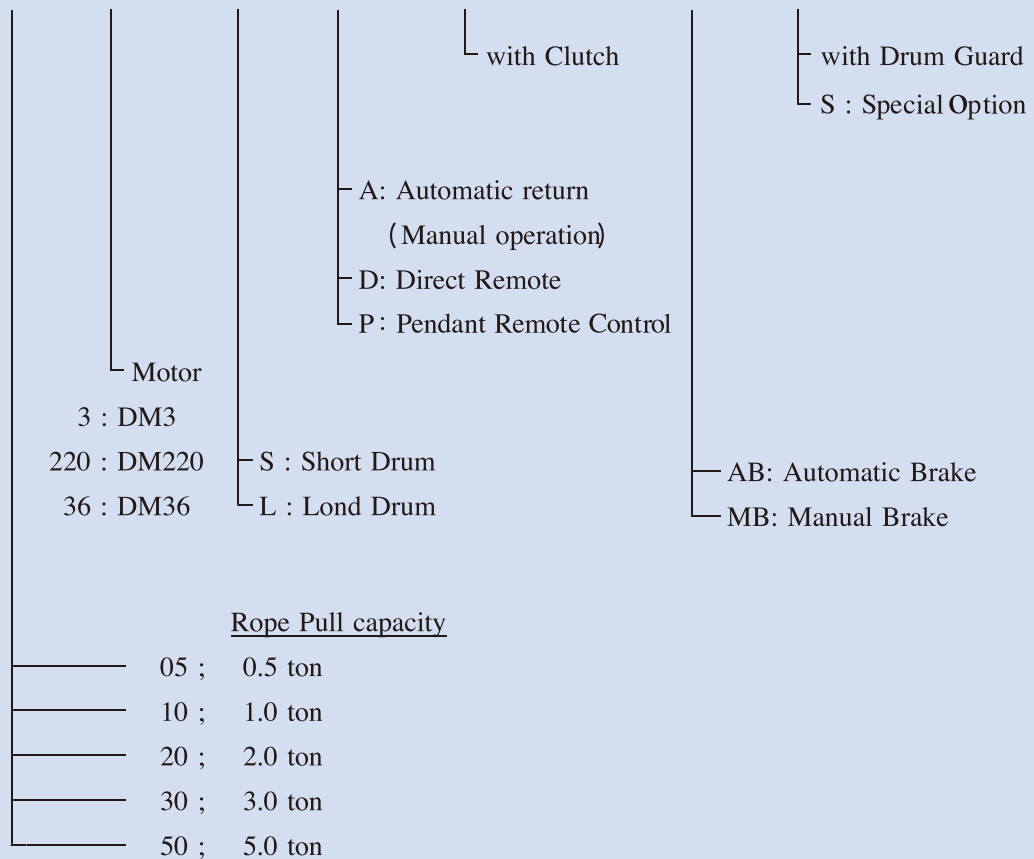
If supply air pressure is less than 0.6 MPa, use the following **multiplied ratio** to obtain calculated specifications.

Supply Air Pressure	ROPE PULL	ROPE SPEED	Air Consumption
0.6 MPa	1.0	1.0	1.0
0.5 MPa	0.87	0.91	0.87
0.4 MPa	0.73	0.84	0.70

# How To Select -2

## Model No. Identification

W-10-220 - S A C - AB - G



## Selection Guide

### 1-1 Rope pull (capacity) and rope speed

that are major factors differ from each other according to how much rope is on the drum.

The first wrap / layer of rope on the drum receives its highest power at the slowest speed.

Full drum is up to maximum speed with lowest power.

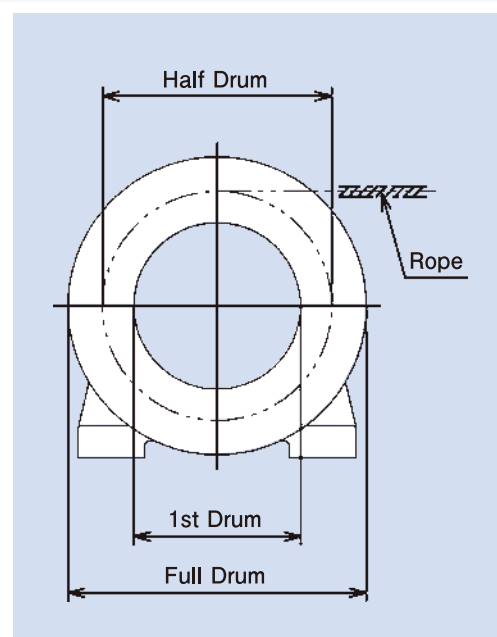
Winch is of **Half Drum to be**

**STANDARD CAPABILITY :  $D_s$ .**

$$D_s = (D_o + D_f) \times 1/2$$

Drum diameter :  $D_o$

Drum root diameter :  $D_f$



## 1-2 Drum size

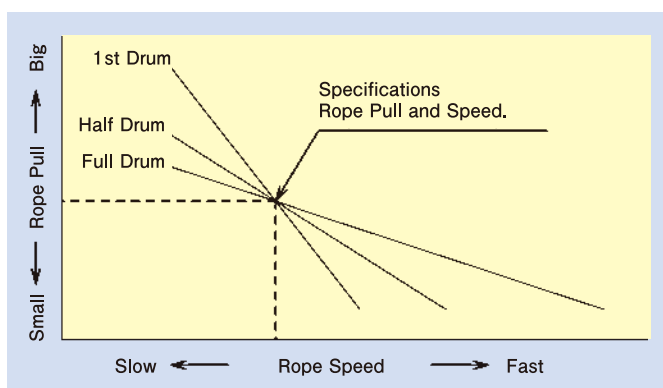
(Dia.:diameter)

Model	Drum Size (mm.)			Rope anchor hole dia.(mm.)
	Dia.	×	Root dia. × Width	
W-05-3	120		216 × 114	10
W-10-220-S	180		410 × 178	16
W-10-220-L	180		410 × 356	16
W-20-220-S	180		410 × 178	16
W-20-220-L	180		410 × 356	16
W-30-36S	240		530 × 240	20
W-30-36L	240		530 × 480	20
W-50-36S	330		600 × 300	28
W-50-36L	330		600 × 600	28

## 2 Load determines maximum rope pull necessary.

Refer to Page 2 Specifications so you may select a model with capacity greater than the determined rope pull.

## 3 Your calculation up to the required rope speed refers to the chart below.



If your required rope speed is less than the figures you calculate,select a model with large enough capacity referred to rope speed in Specifications.

## Rope selection

### 1-1 For Safe working load, five(5)times as much **BREAKING STRENGTH** rope as load is recommended.

The chart below will help in selection.

(unit ; Ton)

Rope dia.(mm)	8	9	10	11.2	12.5	14	16	18	20	22.4	25
Breaking Strength	4.42	5.59	6.9	8.6	10.8	13.5	17.7	22.4	27.6	34.6	43.2
Safe working Load	0.8	1.1	1.3	1.7	2.1	2.7	3.5	4.4	5.5	6.9	8.6

# How To Select -4

## 1-2 Maximum length of rope

that varies according to rope diameter is shown for each Model, when winch is tightly wound.

(unit : meter)

Model	ROPE diameter (mm.)											
	6.3	8	9	10	11.2	12.5	14	16	18	20	22.4	25
W-05-3	65	45	30									
W-10-220-S			210	175	145	117						
W-10-220-L			420	350	290	234						
W-20-220-S						117	90					
W-20-220-L						234	180					
W-30-36S								160	125			
W-30-36L								320	250			
W-50-36S										125	115	85
W-50-36L										250	230	170

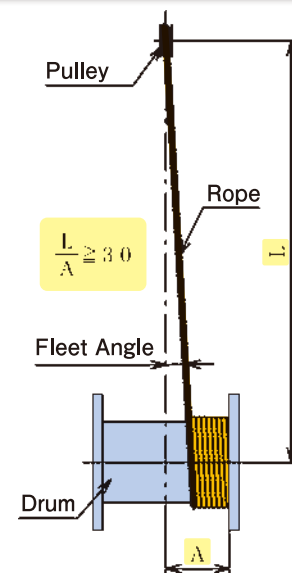
The adequate rope length in actual working is 80% of this length.

## About fleet angle

Fleet angle is an important angle in the rope wind-up straightened onto the Drum. The angle between line of sheave and rope to drum is called fleet angle.

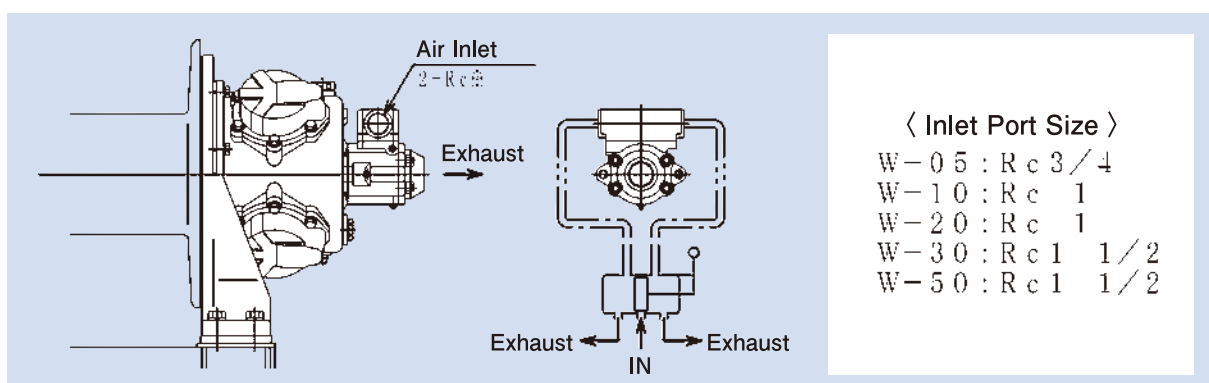
(See Fig. at right)

The best angle is NOT more than 2°  
 When Sheave is in the center line of drum and is positioned [ 30 times as long in distance as drum width ] away from the drum, the best fleet angle is obtained.



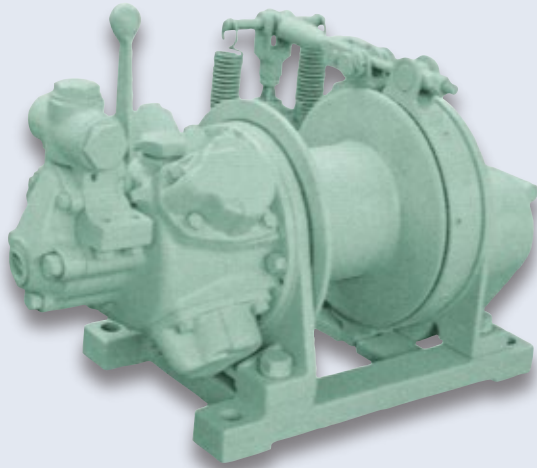
## Direct remote control

operation is featured for your choice as follows :

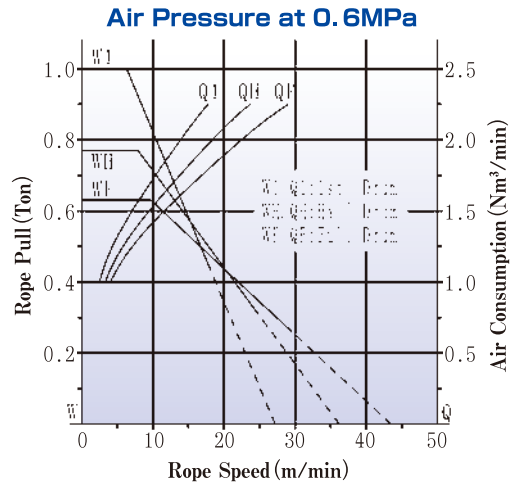


## Capacity 0.5 ton

### PERFORMANCE

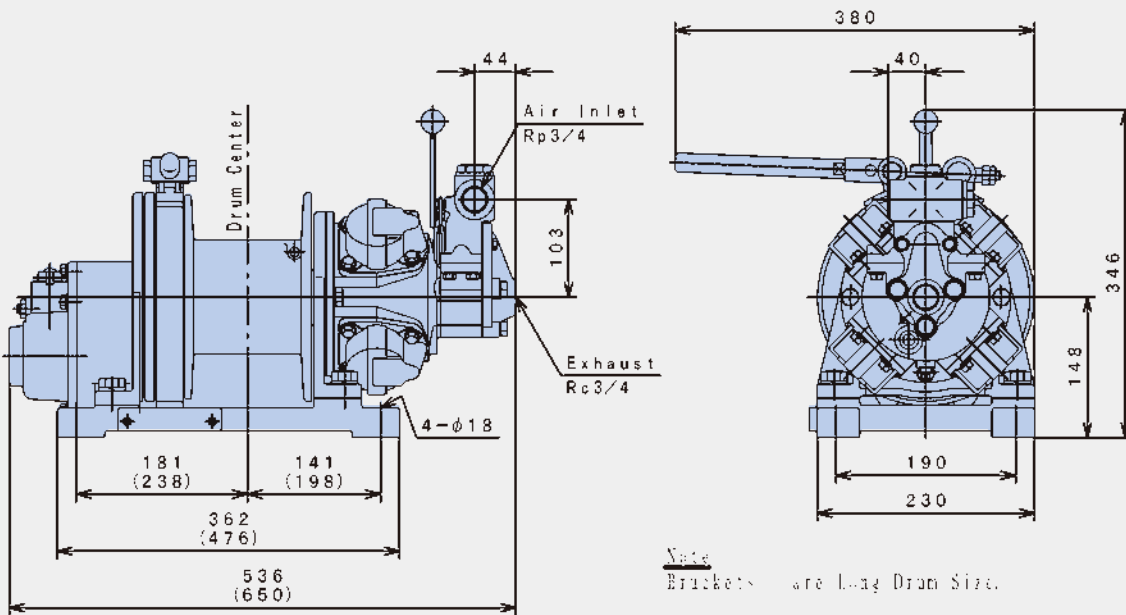


W-05-SAC-AB



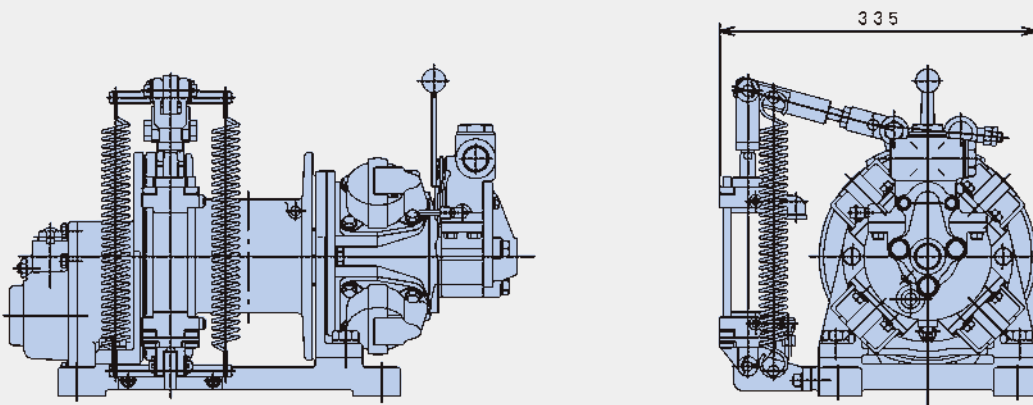
## W-05-3-\*AC-MB

### DIMENSION



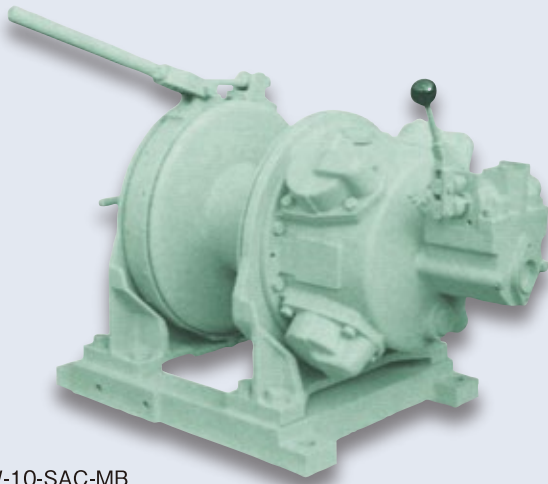
## W-05-3-\*AC-AB

### DIMENSION



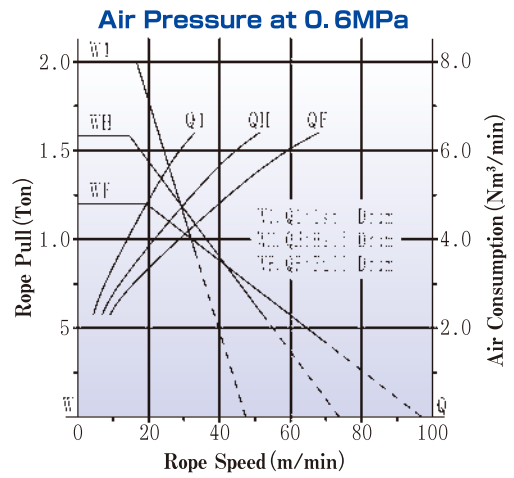
# Model CONFIGURATION

## Capacity 1 ton



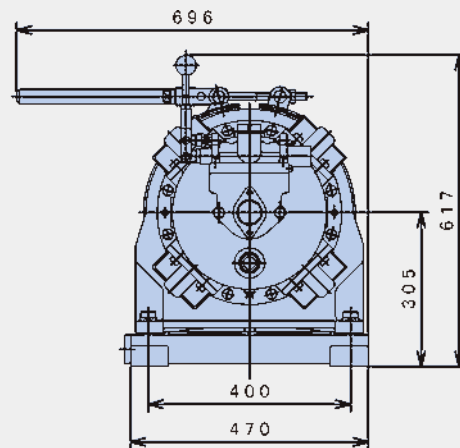
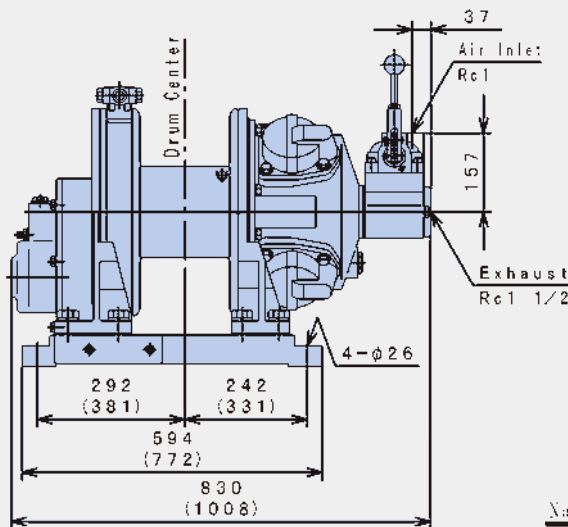
W-10-SAC-MB

### PERFORMANCE



## W-10-220-\*AC-MB

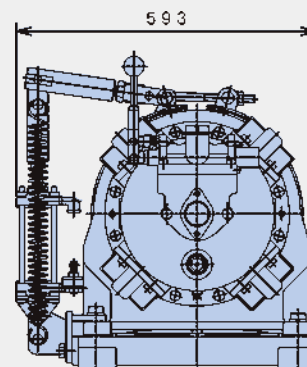
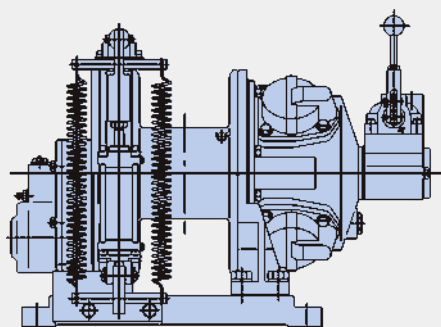
### DIMENSION



Note: Brackets are Long Bran Size.

## W-10-220-\*AC-AB

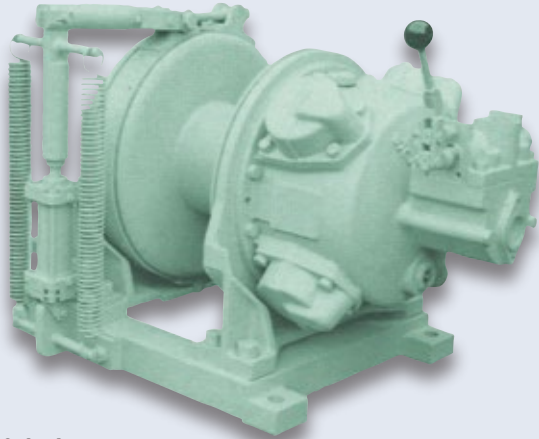
### DIMENSION



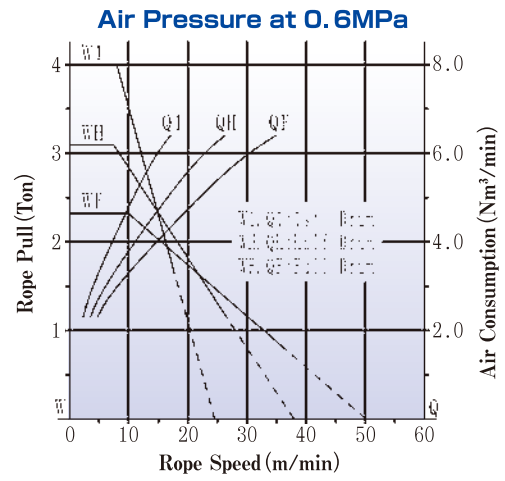


Capacity 2 ton

PERFORMANCE

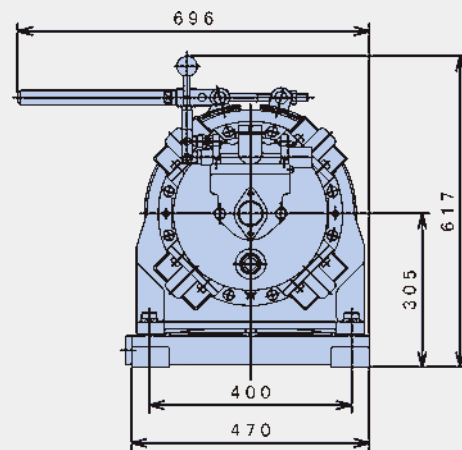
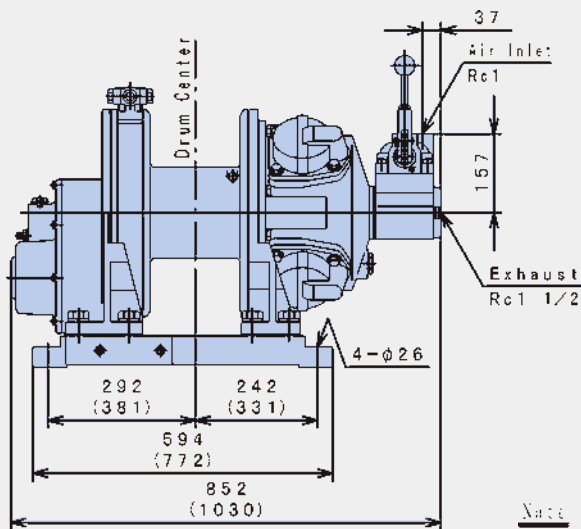


W-20-SAC-AB



W-20-220-\* AC-MB

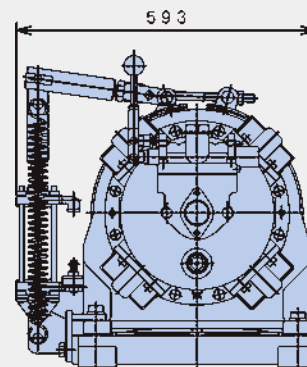
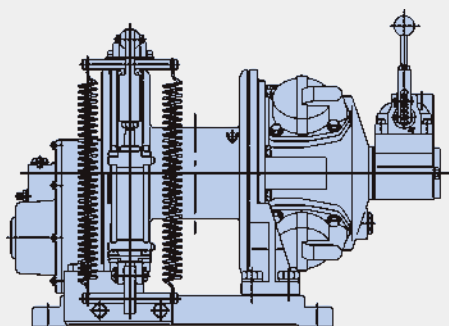
DIMENSION



Note: Brackets are Long Drum Size.

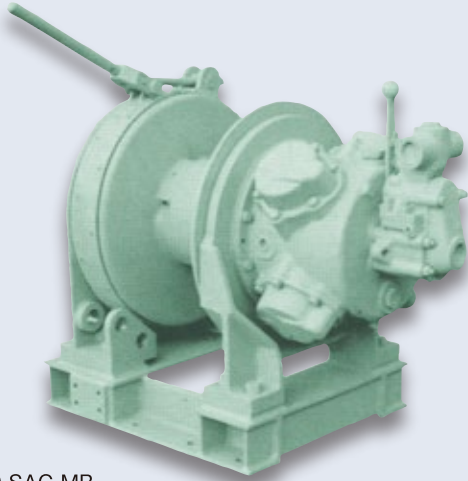
W-20-220-\* AC-AB

DIMENSION



# Model CONFIGURATION

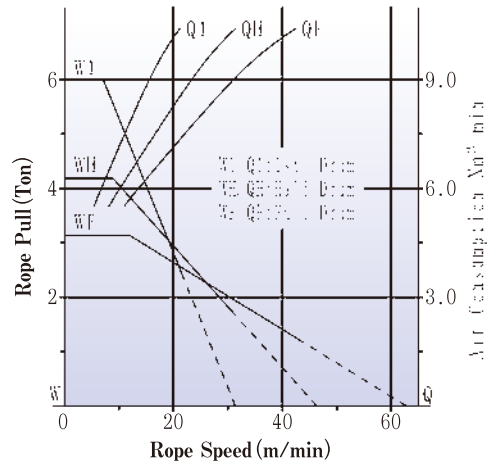
## Capacity 3 ton



W-30-SAC-MB

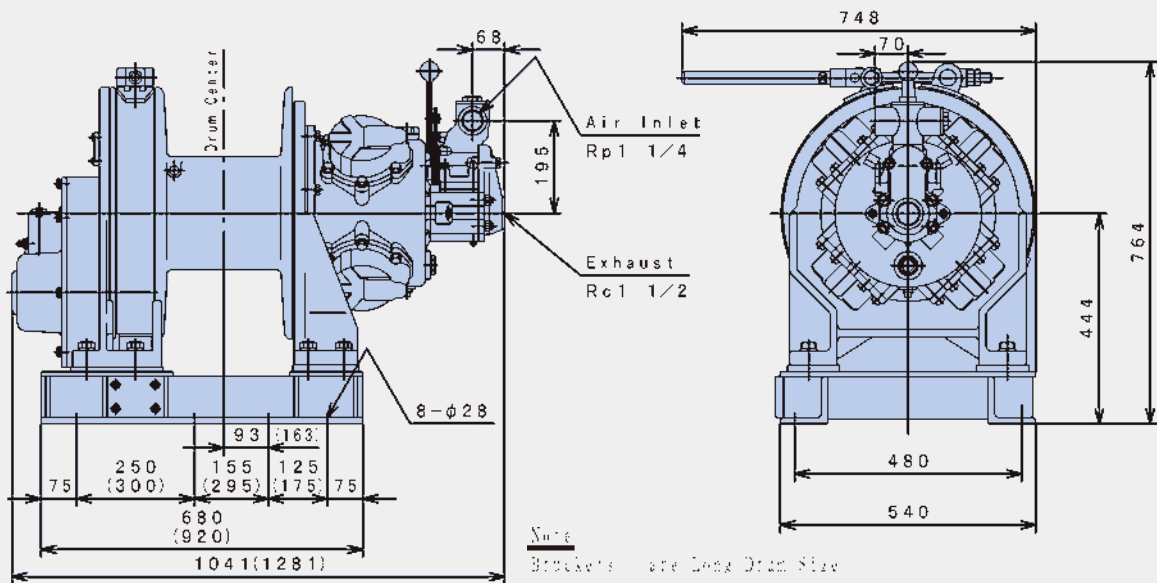
### PERFORMANCE

#### Air Pressure at 0.6MPa



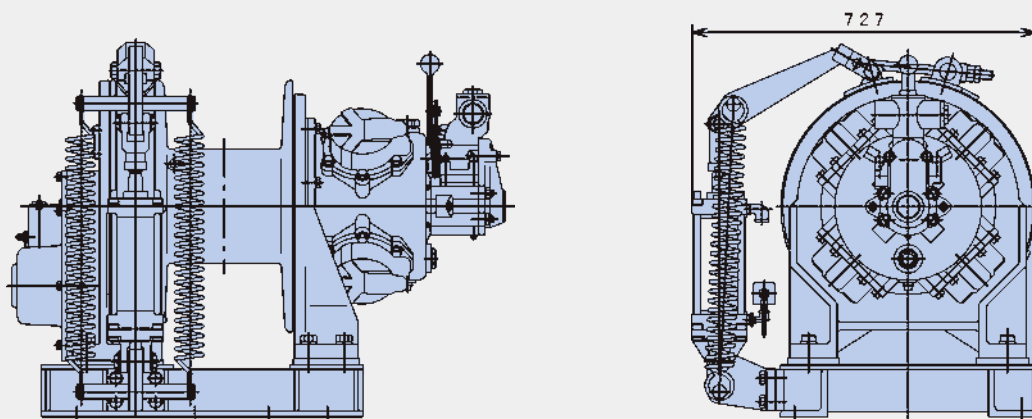
## W-30-36-\*AC-MB

### DIMENSION

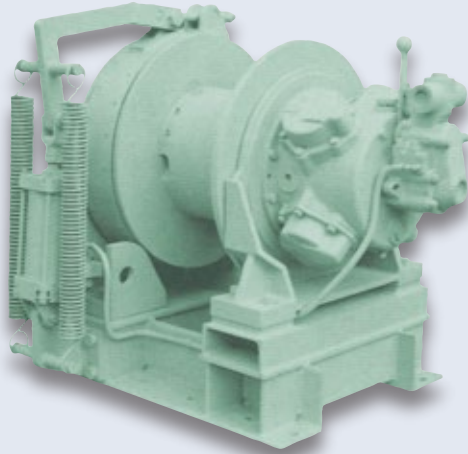


## W-30-36-\*AC-AB

### DIMENSION



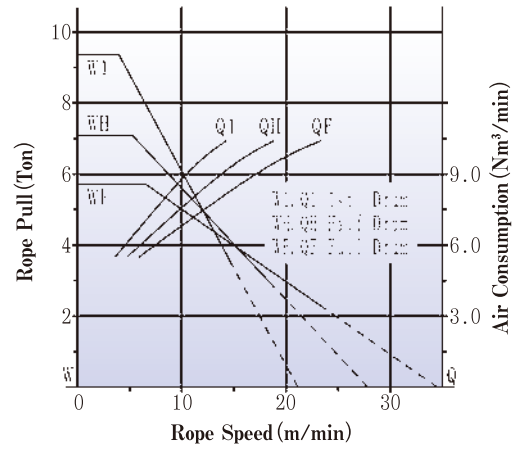
## Capacity 5 ton



W-50-SAC-AB

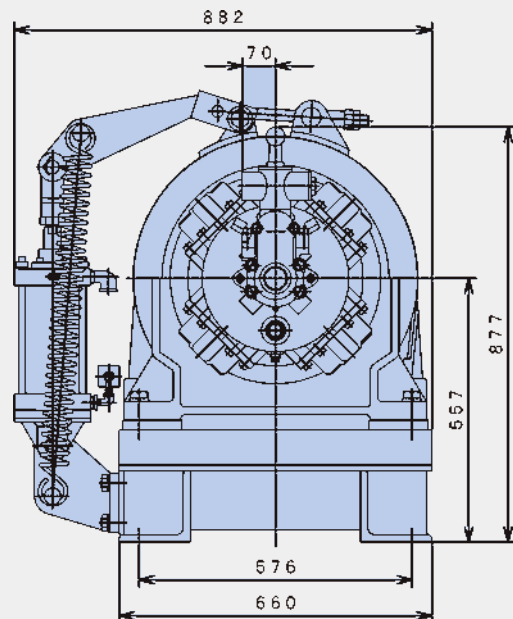
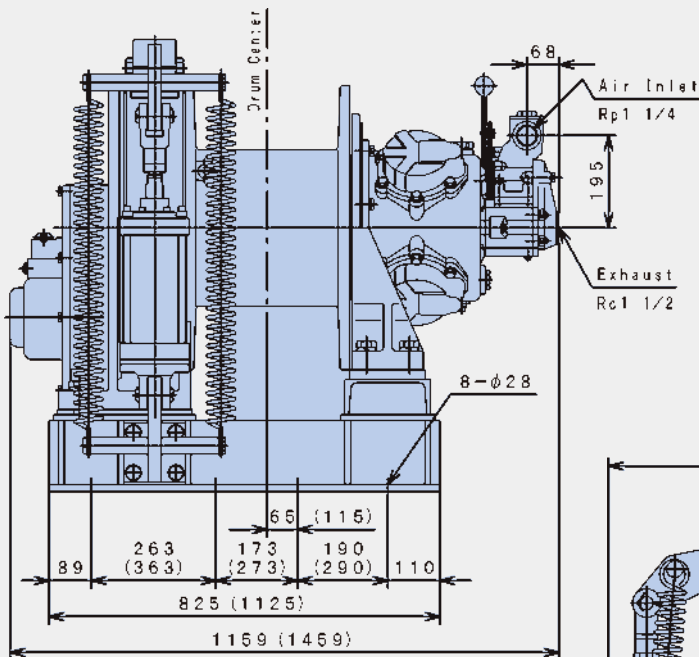
### PERFORMANCE

Air Pressure at 0.6MPa



## W-50-36-\*AC-AB

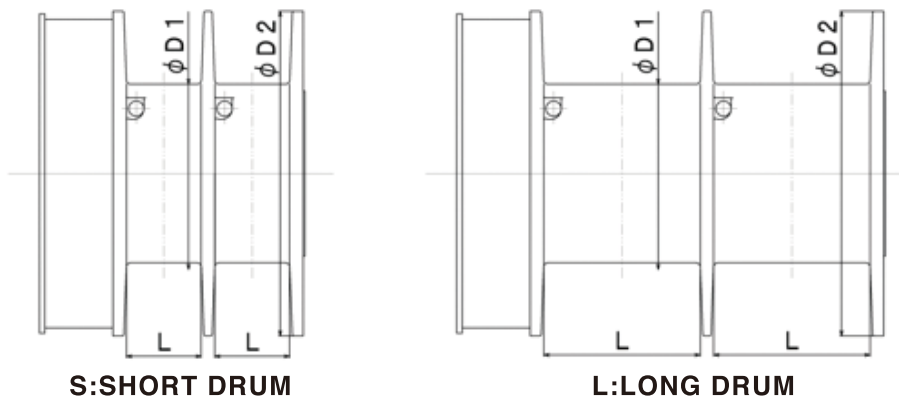
### DIMENSION



Note  
Brackets are Drawn Size

# Double drum size

## DOUBLE DRUM



### 1-1 Drum size

Model	DRUM TYPE	L(mm)	φD2(mm)	φD1(mm)
W-05-3	S	51.5	120	220
	L	108.5		
W-10-220	S	81.5	180	410
	L	170.5		
W-20-220	S	81.5	180	410
	L	170.5		
W-30-36	S	107.5	240	530
	L	227.5		
W-50-36	S	137.5	330	600
	L	287.5		

### 1-2 Maximum wind-up length of rope

Model	DRUM TYPE	ROPE diameter (mm.)											
		6.3	8	9	10	11.2	12.5	14	16	18	20	22.4	25
W-05-3	S	46	30	21									
	L	97	64	46									
W-10-220	S			98	81	66	53						
	L			205	170	139	112						
W-20-220	S					66	53	42					
	L					139	112	89					
W-30-36	S							91	72	57			
	L							193	154	121			
W-50-36	S									76	58	53	39
	L									160	121	112	82

The adequated rope length in actual working is 80% of this length.

## CUSTOMS ORDER

On the top of our Standard models, Custom-order model is ready to supply.  
Your inquiry with specifications is most welcome. An adequate Model is offered soon.

- ▶ Special Painting ▶ Cold Resistance ▶ Heatproof ▶ Double Brakes
- ▶ Pendant Control ▶ Double Drum ▶ Special Drum Length etc.

## OPTIONS

Followings are optional. Other options, please ask.

- ▶ Wire Rope ▶ Drum Guard ▶ Exhaust Cleaner ▶ Muffler ▶ FRL Unit ▶ Air hose assy. etc.

## WARRANTY

SAN-EI warrants air winches for defective materials and production for **One year** from the date of shipment (NOT date of user's installation / commissioning).

This warranty does not apply to air winches that have been misused, abused, maintained improperly, damaged intentionally by users.

## ABOUT CLASS

NK, ABS and other class, please feel free to ask.





10ton winch



2ton winch pendant control type



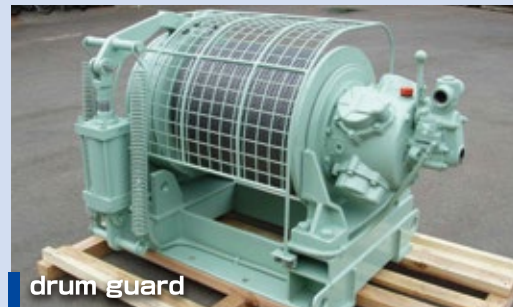
5ton winch remote control type



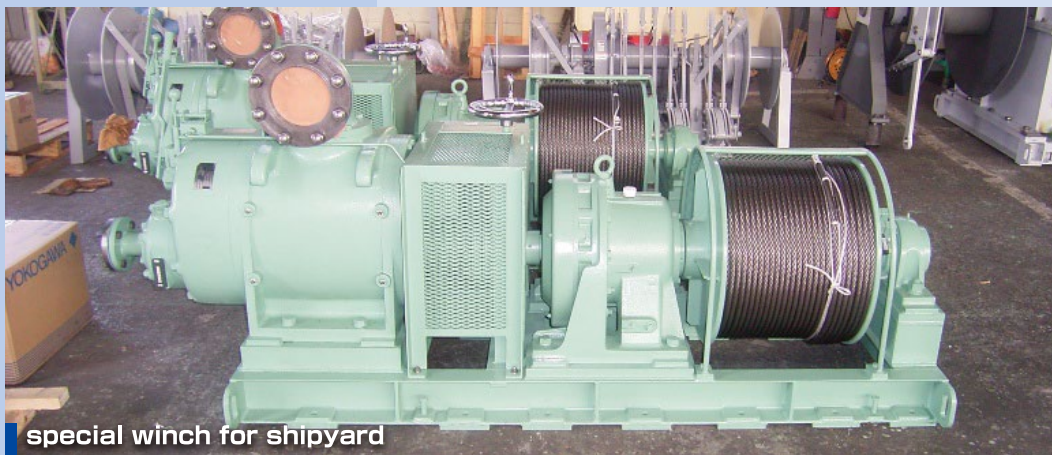
10ton winch



sample of special paint&drum guard



drum guard



special winch for shipyard

San-Ei's Power is your Power

## San-ei Seiki Seisakusho Co., Ltd.

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**URL:** <http://sanei-air.com/>

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Please consults for current products details