

# Indexing table

## RF 1



### Features

- Low play toothed belt drive with stepper or DC servo motor
- Reduction 1: 24 (standard)
- Weight: 14.6 kg

For pin assignment see page 2-112  
For transport loads, see page 2-113

### Options:

- Reduction installation set  
1 : 52 or 1 : 100
- Electromagnetic brake [60 Nm]
- Step motor drive with encoder
- CNC controller

### Ordering key

2 6 0 2 4 X X X 0 0

#### Motors

- 1 = Stepper motor MS 200 HT without encoder
- 4 = brushed DC servomotor DC 100
- 5 = brushless EC servomotor EC 60S

#### Brake

- 0 = without brake
- 1 = magnetic brake

#### Plug

- 1 = servomotor: M23 + SubD15
- 2 = Stepper motor: SubD9

### Accessories



#### Installation set

for reduction 1:52

Part no.: **269077 0001**

for reduction 1:100

Part no.: **269077 0002**



#### Aluminium T-slot plate

Ø 240 mm / PT 25

Part no.: **269050 0240**

Ø 365 mm / PT 25

Part no.: **269050 0365**



#### Chuck assembly

3-jaw chuck Ø 125

Part no.: **269063 2125**

## Indexing table

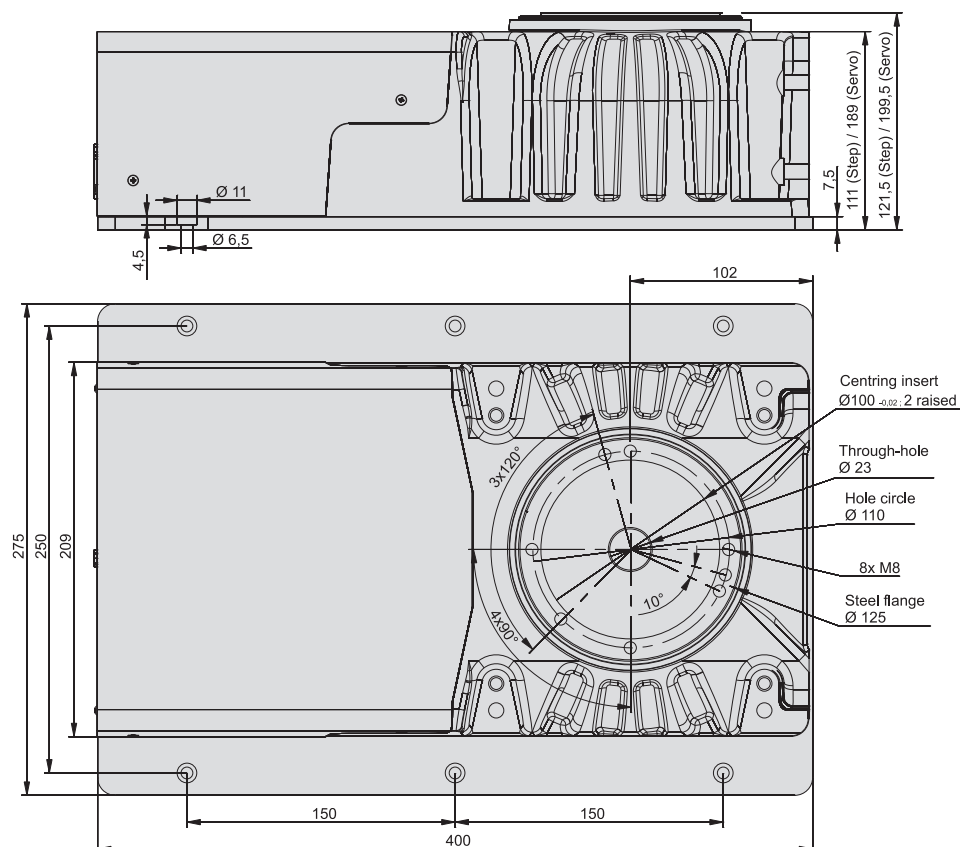
RF 1

## Technical specification

	stepper motor MS 200 HT *			Servomotor DC 100/EC 60S		
Reduction ratio	1:24	1:52	1:100	1:24	1:52	1:100
Output speed [1/min]	0 - 50	0 - 23	0 - 12	0 - 125	0 - 58	0 - 30
Operating torque (0 - 500 Hz) [Nm]	20	42	75	--		
Operating torque (500 - 1000 Hz) [Nm]	18	38	75	--		
Rated torque [Nm]	--			41070	13 / 22	25 / 42
Rated holding torque (static load) [Nm]	37	75	75	41102	16 / 26	30 / 50
Angle accuracy [°]	0.16					
Weight [kg]	14.6					

\* Values for half-step operation

## Dimensioned drawings

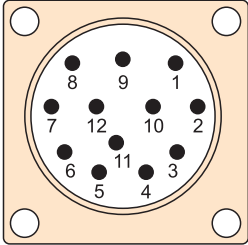


# Motor pin assignments

## Pin assignment for 12-pin stepper motors

(for RDH, DSH-S)

### Motor connection



Plug side view of pin insert

M23 12-pin Pin	
1	Motor phase 1A
2	Motor phase 1B
3	Motor phase 2A
4	Motor phase 2B
5	+24V switch
6	+24V brake
7	GND switch
8	GND brake
9	Limit switch 1
10	Limit switch 2
11	---
12	---
Housing - cable shield	

## Pin assignment for 9-pin stepper motors

(for RF1, iZD 54, MD 1, ZD 30, ZR 20, ZDS 2030)

### Motor connection



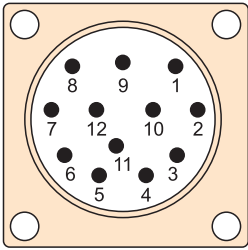
Plug side view of pin insert

Sub-D 9-pin Pin	
1	Motor phase 1A
2	Motor phase 1B
3	Motor phase 2A
4	Motor phase 2B
5	+24V switch
6	+24V brake
7	Limit switch 2
8	GND brake
9	Limit switch 1
Housing - cable shield	

## Pin assignment for stepper motors with encoder

(for RDH)

### Motor connection



Plug side view of pin insert

M23 12-pin Pin	
1	Motor phase 1A
2	Motor phase 1B
3	Motor phase 2A
4	Motor phase 2B
5	+24V switch
6	+24V brake
7	GND switch
8	GND brake
9	Limit switch 1
10	Limit switch 2
11	---
12	---
Housing - cable shield	

### Encoder connection

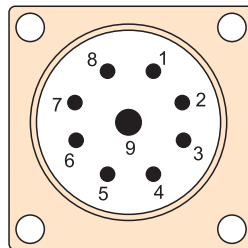


Plug side view of pin insert

Sub-D 9-pin Pin	
1	+5V encoder
2	Encoder track A
3	Encoder track B
4	Encoder track Z
5	---
6	GND encoder
7	Encoder track/A
8	Encoder track/B
9	Encoder track/Z
Housing - cable shield	

## Pin assignment for DC servo motors with brushes (BDC)

### Motor connection

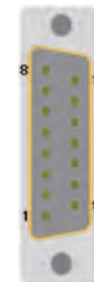


Plug side view of pin insert

M23 9-pol. (8+1) pin	
1	Motor phase 1 (V+)
2	Motor phase 1 (V-)
3	Motor phase 1 (V+)*
4	Motor phase 1 (V-)*
5	+24V brake
6	GND brake
7	---
8	---
9	Earthing lead
Housing - cable shield	

\* Part motor phase connection over 2 wires.

### Encoder connection

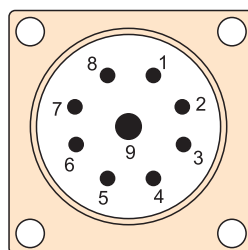


Plug side view of pin insert

Sub-D 15-pin Pin	
1	---
2	+5V encoder
3	Encoder track/Z
4	Encoder track/B
5	Encoder track/A
6	+24V switch
7	Limit switch 1
8	GND switch
9	---
10	GND encoder
11	Encoder track Z
12	Encoder track B
13	Encoder track A
14	Reference switch
15	Limit switch 2
Housing - cable shield	

## Pin assignment for brushless EC servomotors (BLDC) 48V

### Motor connection



Plug side view of pin insert

M23 9-pol. (8+1) pin	
1	Motor phase U
2	Motor phase V
3	Motor phase W
4	---
5	+24V brake
6	GND brake
7	---
8	---
9	Earthing lead
Housing - cable shield	

### Encoder connection

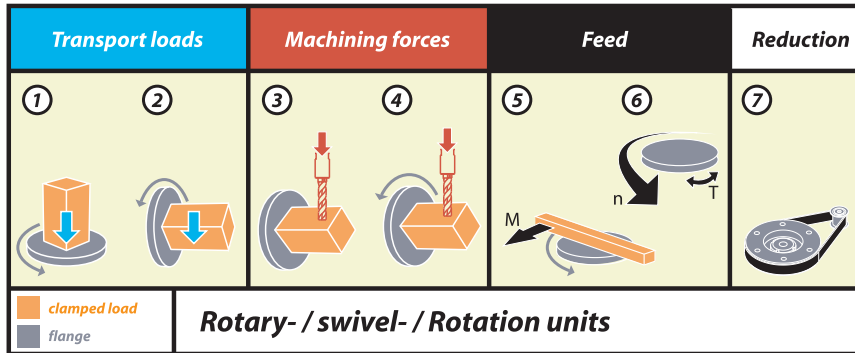


Plug side view of pin insert

Sub-D 15-pin Pin	
1	Hall signal A
2	+5V encoder/Hall
3	Encoder track/Z
4	Encoder track/B
5	Encoder track/A
6	+24V switch
7	Limit switch 1
8	GND switch
9	Hall signal B
10	GND encoder
11	Encoder track Z
12	Encoder track B
13	Encoder track A
14	Hall signal C
15	Limit switch 2
Housing - cable shield	

Turn/tilt/rotation units:

# Transport loads, machining forces, feed



Rotary or tilting units	1*	2*	3	4	5	6	7
RDH-M (step)	100 kg	45 kg	55 Nm	24 Nm	24 Nm	4 rpm	1:51
RDH-M (step)	160 kg	70 kg	108 Nm	45 Nm	45 Nm	2 rpm	1:101
RDH-M (EC-servo, brushless)	110 kg	50 kg	26 Nm	9 Nm	9 Nm	22 rpm	1:51
RDH-M (EC-servo, brushless)	180 kg	80 kg	51 Nm	17 Nm	17 Nm	11 rpm	1:101
RDH-S (step)	30 kg	15 kg	7 Nm	7 Nm	7 Nm	4 rpm	1:51
RDH-S (step)	48 kg	24 kg	11 Nm	11 Nm	11 Nm	2 rpm	1:101
RDH-S (EC-servo, brushless)	30 kg	15 kg	7 Nm	4.6 Nm	4.6 Nm	22 rpm	1:51
RDH-S (EC-servo, brushless)	48 kg	24 kg	11 Nm	4.6 Nm	9.2 Nm	11 rpm	1:101
RDH-S (DC-servo)	25 kg	13 kg	7 Nm	4.6 Nm	4.6 Nm	22 rpm	1:51
RDH-S (DC-servo)	40 kg	20 kg	11 Nm	8.7 Nm	8.7 Nm	11 rpm	1:101
RDH-XS (step)	30 kg	10 kg	5 Nm	5 Nm	5 Nm	24 rpm	1:50
RDH-XS (step)	30 kg	10 kg	7 Nm	7 Nm	7 Nm	12 rpm	1:100
RDH-XS (EC-servo, brushless)	30 kg	10 kg	5 Nm	5 Nm	5 Nm	59 rpm	1:50
RDH-XS (EC-servo, brushless)	30 kg	10 kg	7 Nm	7 Nm	7 Nm	30 rpm	1:100
RDH-XS (DC-servo)	30 kg	10 kg	5 Nm	5 Nm	5 Nm	70 rpm	1:50
RDH-XS (DC-servo)	30 kg	10 kg	7 Nm	7 Nm	7 Nm	35 rpm	1:100
RF 1 (step)	60 kg	30 kg	37 Nm	17.5 Nm	17.5 Nm	50 rpm	1:24
RF 1 (step)	100 kg	50 kg	75 Nm	38 Nm	38 Nm	23 rpm	1:52
RF 1 (step)	150 kg	75 kg	75 Nm	75 Nm	75 Nm	12 rpm	1:100
RF 1 (DC servo/EC servo)	70 kg	35 kg	7 / 12 Nm	6 / 10 Nm	6 / 10 Nm	125 rpm	1:24
RF 1 (DC servo/EC servo)	110 kg	55 kg	16 / 26 Nm	13 / 22 Nm	13 / 22 Nm	58 rpm	1:52
RF 1 (DC servo/EC servo)	160 kg	80 kg	30 / 50 Nm	25 / 42 Nm	25 / 42 Nm	30 rpm	1:100
MD 1 (step)	5 kg	2.5 kg	14 Nm	8 Nm	8 Nm	60 rpm	1:20
MD 1 (DC servo)	6 kg	3 kg	3.9 Nm	3 Nm	3 Nm	175 rpm	1:20
MD 1 (EC servo, brushless)	6 kg	3 kg	4 Nm	3.2 Nm	3.2 Nm	150 rpm	1:20
ZR 20 (step)	10 kg	5 kg	14 Nm	8 Nm	8 Nm	60 rpm	1:20
ZD 30 (step)	14 kg	8 kg	20 Nm	12 Nm	12 Nm	40 rpm	1:30

\*) Guideline values will vary according to application !!

# Two-phase stepper motors

## MS 135/200 HT-2



Two-phase stepper motor MS 135 HT - 2

### Features

- Step angle 1.8°, higher resolution through microstep mode
- Very high torque through rare earth magnets
- Optimised for use with position controllers
- Optimum torque/size ratio
- Smaller step angle errors, non-cumulative
- IP43 protection class
- **Optional:**
  - MD 24 drive module
  - Brake (MS 200 HT)
  - Second shaft end (MS 200 HT)

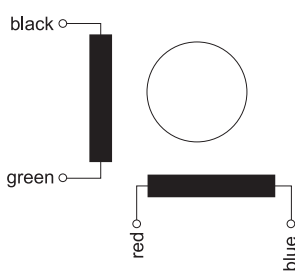
### General

Two-phase stepper motors behave similarly to synchronous motors. They are easy to control and are characterised by very long working life and reliability, at a favourable price. This results in a wide range of applications. Two-phase stepper motors in the MS range are of the high torque type. A particularly high torque is achieved by the use of rare earth magnets.

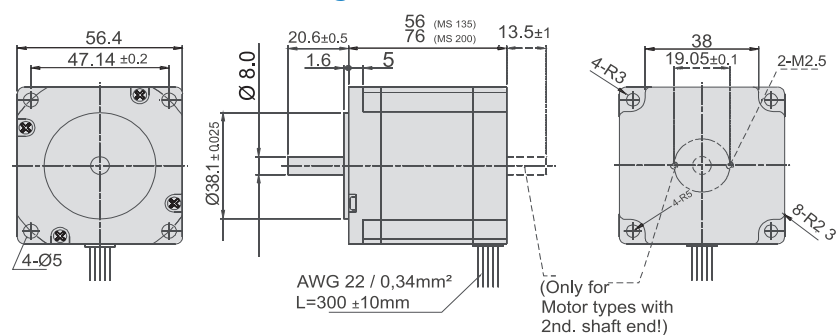
### Technical specification

Description	Holding moment bipolar Nm	Winding current per phase A	Winding voltage per phase V	Winding inductance per phase mH	Weight kg	Length (without shaft) mm	Part no.
MS 135 HT-2	1.1	3.0	2.4	2.4	0.7	56	<b>470551</b>
MS 200 HT-2	1.8	3.0	3.0	3.5	1.0	76	<b>470581</b>
MS 200 HT-2 (2nd shaft end)	1.8	3.0	3.0	3.5	1.1	76	<b>470581 0100</b>
MS 200 HT-2 (brake)	1.8	3.0	3.0	3.5	1.8	76	<b>470581 0200</b>

### Wiring diagram

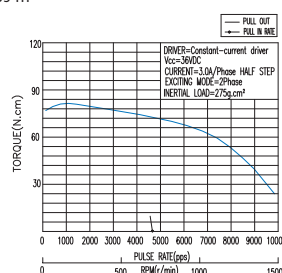


### Dimensioned drawing

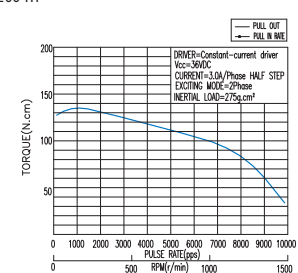


### Torque curves

MS 135 HT



MS 200 HT



Subject to technical changes.