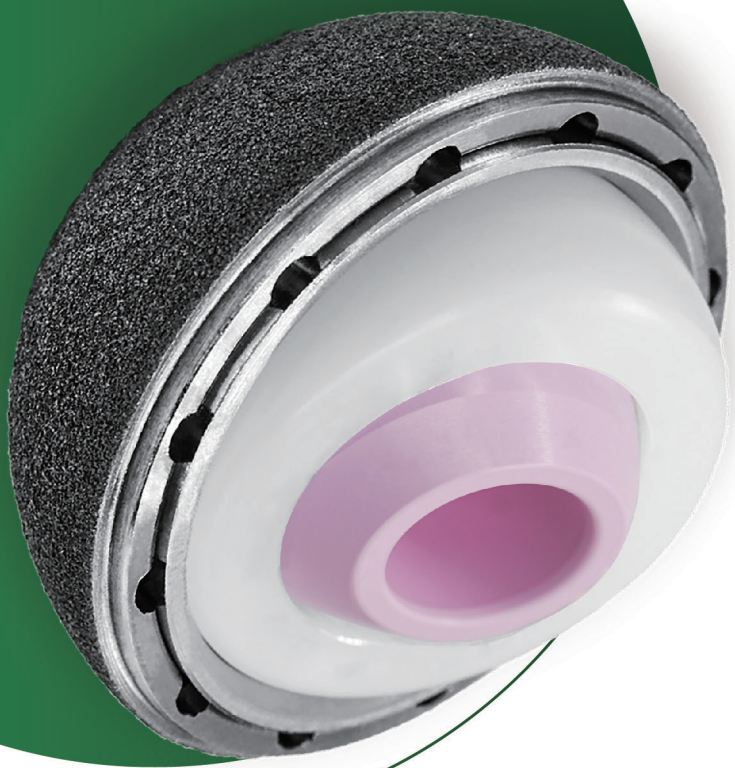
JUST®
MEDICAL



# Anti-dislocation Dual Mobility Acetabular System

Surgical technical

Easy to Operate, Stable and Safe

JUST®
MEDICAL

# HIP PRODUCTS FOR ALL-ROUND SURGICAL SOLUTIONS

Dynamic fatigue tests of femoral stem's head-neck conjunction and body after 10 million cycles in the international CNAS laboratory shows excellent results and no risk of fracture.
Dynamic wear tests after 5 million cycles in the international Endolab® laboratory in Germany shows excellent wear resistance.

## ACETABULAR CUP

### *HARMONY™ ACETABULAR CUP SYSTEM*

HARMONY Cup
(Ti+HA, DDH)

HARMONY Cup
(Ti+HA)

HARMONY Cup
(Ti-Porous)

### *SEE 3D PRINTING TRABECULAR ACETABULAR CUP SYSTEM®*

SEE Trabecular Cup
(Titanium, DDH)

SEE Trabecular Cup
(Titanium)

SEE Trabecular Cup
(Titanium, Revision)

### *CAGE AND MESH SYSTEM*

AOS Cage (Revision)

AOS Ring (Revision)

Acetabular Mesh (Revision)

### *CEMENTED ACETABULAR CUP*

Cemented Acetabular Cup

## LINER

22/32Standard
（UHMWPE）

28/10°
(UHMWPE)

32/10°
(UHMWPE)

28/10°
（HPE）

32/10°
（HPE）

36/10°
（HPE）

（38-50）Dual Mobility Metal Liner
（CoCrMo）

（46-58）Dual Mobility PE Liner
（UHMWPE）

28 Cemented liners
（HPE）

32 Cemented liners
（HPE）

36 Cemented liners
（HPE）

Bone model restoration

## FEMORAL HEAD

Φ22 (0/+3.5)

Φ24（+0/3.5/7）

Φ28

Φ28（±3.5）

Φ28（+7）

Φ32

Φ32（±3.5）

Φ32（+7）

Bipolar Head

Φ28（S/M/L）
BIOLOX®delta Ceramic

Φ32（S/M/L/XL）
BIOLOX®delta Ceramic

Φ36（S/M/L/XL）
BIOLOX®delta Ceramic

Customized prosthesis design

## FEMORAL STEM

MINI™
Minimally Invasive Stem

DELTA CLASSIC
Rectangular Stem (Ti+HA)

HARMONY
Tapered Stem (Ti-porous)

DELTA
Rectangular Stem (Ti-porous)



TAICH®
Cemented Stem



SEE® 3D Printing
Trabecular Modular Stem



Hip Spacer



TAICH® LONG
Cemented Revision Stem



RSL®
Revision Stem

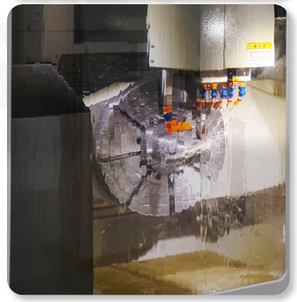


Customized product
simulated implantation

—*MINIMAL INVASIVE*— —— *PRIMARY* —— ——*COMPLEX PRIMARY*—— —— *REVISION* —— —*CUSTOMIZED*—

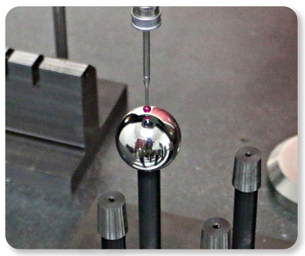
## Imported Raw Materials

All raw materials of UHMWPE liners / XPE liners / gaskets were manufactured in Germany, meeting the technical requirements in ISO5834 part 2 and ASTM F648 and ASTM F2625. The raw materials of 3D printed trabecular acetabular cups were manufactured of AP&C low oxygen titanium alloy, meeting the AS 9100C/ISO 9001:2008/ISO 13485 certification standard.



## Strict Inspection

## JUST MEDICAL Inspection Center



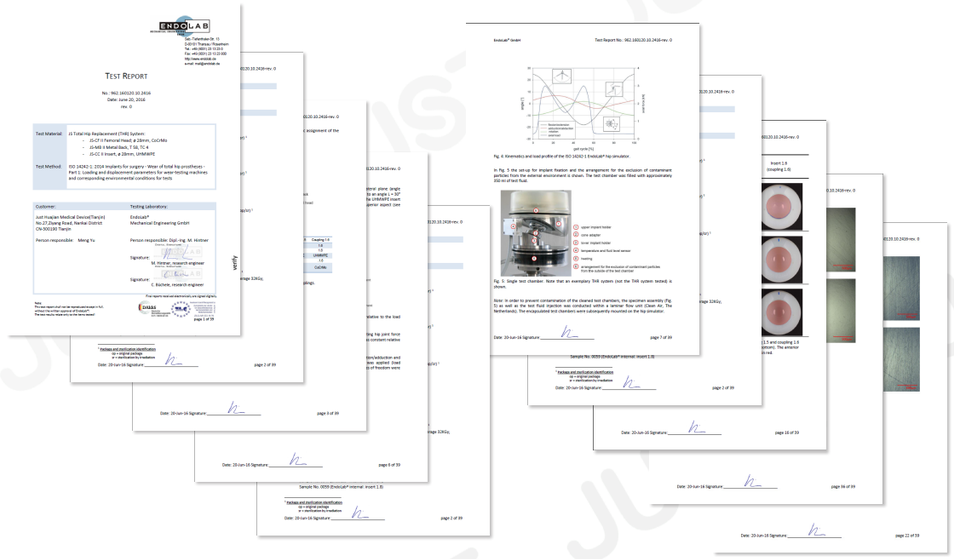


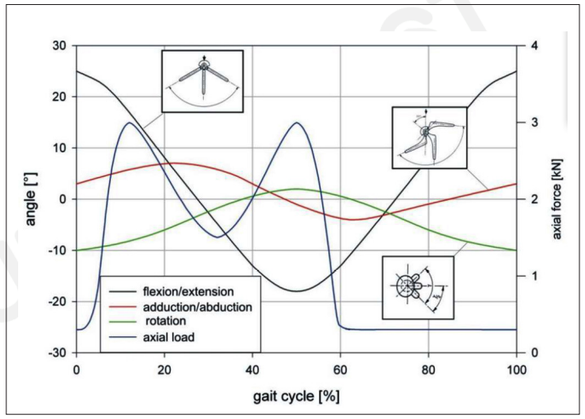


## EndoLa® Gmbh

In order to ensure the effective quality of JUST Medical Hip products, 5 million dynamic wear tests have been carried out in the EndoLab® Gmbh in addition to the full project testing of the JUST Medical quality testing Center.

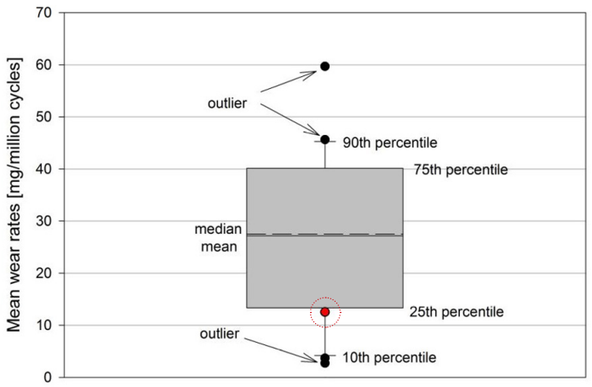
EndoLab® Gmbh, Affiliated to the University of Munich, Germany, and in close cooperation with a number of national and international research departments, is an accredited test laboratory according to ISO 17025. The laboratory mainly carries on the detection and dynamic wear simulation test of implant-like prosthesis. And EndoLab® Gmbh is an accredited ZLG-P-944.98.07 laboratory.




▲ EndoLab® hip joint simulates dynamic loads(ISO 14242-1)

The experiment is to test the wear performance of JUST MED THR system (conventional UHMWPE on 28mm femoral head CoCrMo).



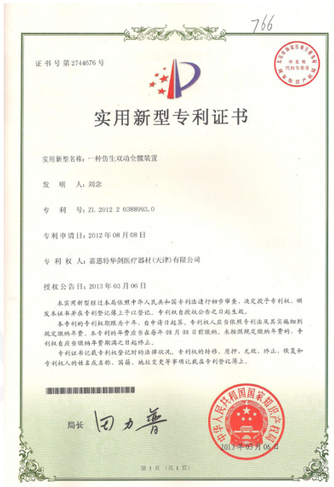

▲ JUST THR system data are marked in red.

The JUST MED THR products showed a mean wear rate of 12.53 mg per million cycles. Compared with the EndoLab® database, the wear rate of JUST MED THR products is below the mean value of 27.49 mg per million cycles tested at EndoLab®, so far.

## Patent Certificate

Patent Name: A Trabecular Hip Joint System
Patent Number:ZL 2015 1 0494083.9
Patent Name: A Bionic Dual Mobility Total Hip Device
Patent Number:ZL 2012 2 0388993.0


发 明 专 利 证 书


实用新型专利证书



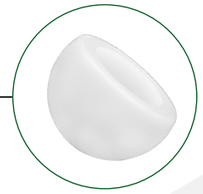


## Product Features

**Reduced risk of dislocation**
Large diameter liner can effectively enhance the stability of joints and basically achieve "zero" dislocation rate.

**Increased range of motion**
Dual Mobility structure design, which can provide a maximum range of motion of more than 200 degrees.

**Ultra low wear rate**
Mirror polishing on the inside of metal liner can be compatible with movable polyethylene liner and ceramic head to form a safe and effective low friction interface.



**Edge bevel design**
Avoid the impingement of the femoral neck and the edge of the liner.

**Guaranteed initial stability**
Screw fixation can be selected during the operation to avoid early loosening.

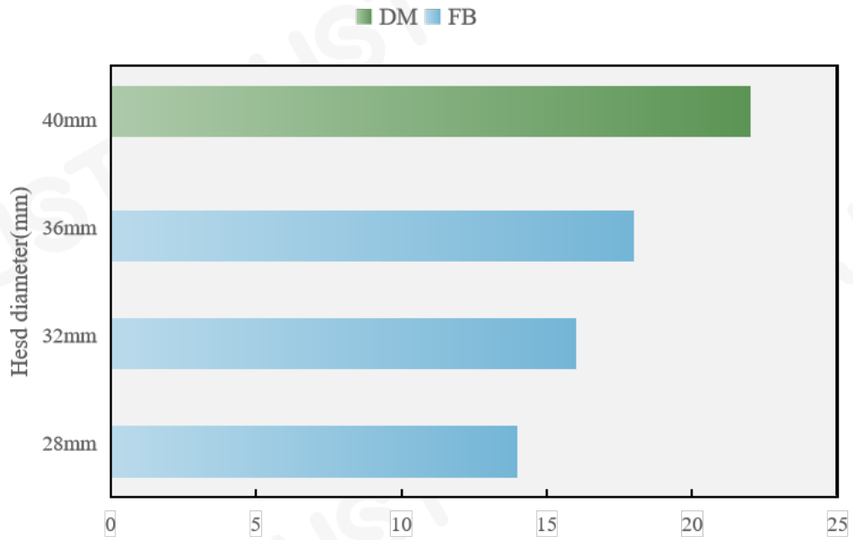
**Excellent compatibility**
The metal liner can match the conventional acetabular cup, realizing the flexible matching of multiple liners in one acetabular cup.

**Guide peg design**
Provide better guidance for the installation of the metal liner, ensure that the insertion direction of the metal liner is align with the axis of the acetabular cup, and is convenient for operation.

## Reduced risk of dislocation

Polyethylene Liner (Dual Mobility Liner) It can be regarded as a large diameter femoral head.

Large diameter femoral head can effectively enhance the stability of the joint, and dislocation requires a larger jumping distance to occur.




The picture shows the test results of the jump distance with the acetabular cup of 54mm diameter: the jump distance increases with the increase of the head.

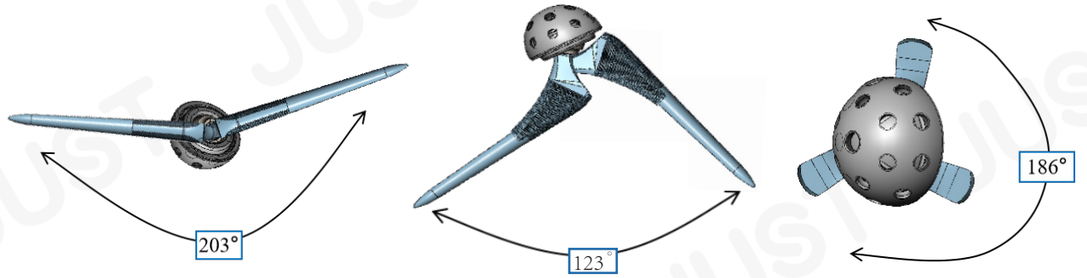
Dual Mobility total hip increases the jumping distance and effectively reduces the risk of dislocation.

| Acetabular Cup | dual mobility liner actual size |
|---|---|
| 46 | 32 |
| 48 | 34 |
| 50 | 36 |
| 52 | 38 |
| 54 | 40 |
| 56 | 42 |
| 58 | 44 |





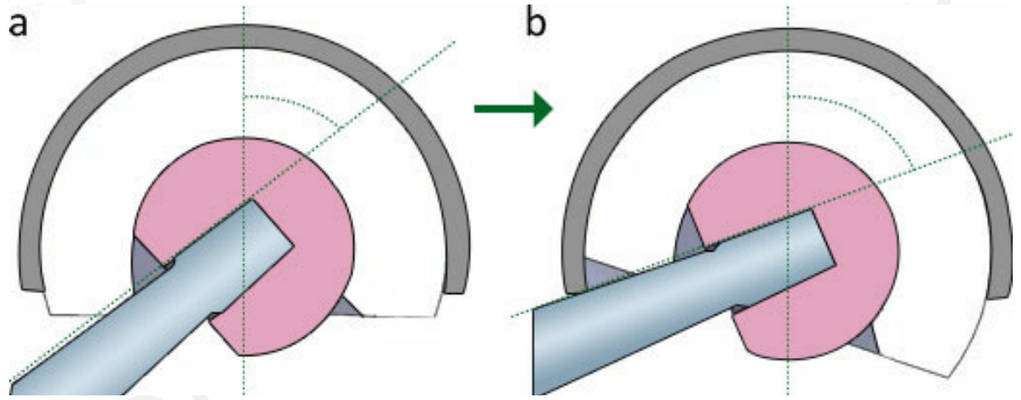
## Increased range of motion




Flexion / Extension | Abduction / Adduction | Internal / External Rotation

ROM can be increased to more than 200 degrees, much higher than the industry standard.

Note:The YY/T0920-2014 standard stipulates that the range of angular motion between femur and acetabular parts is at least: flexion / extension 100 degrees, abduction / adduction 60 degrees, internal rotation / external rotation 90 degrees.




Compared with the traditional prosthesis, the dual mobility total hip prosthesis can increase flexion 30 degrees, adduction 15 degrees and external rotation 22 degrees.

## Step 1

### Preoperative planning

Preoperative planning can make doctors prepare for the operation and predict the possible problems during the operation, including the steps of patient history, physical examination and X-ray analysis.

1.Estimate the size and location of the acetabular cup
2Determine the difference of lower limb length before operation
3.Determine the size, position and matching degree of the femoral prosthesis

### Preoperative template measurement (X-ray)

The measurement of the prosthesis template before operation is to place the prosthesis in the correct position during the operation, restore the rotation center of the hip joint, and the femoral eccentricity reaching the equal length of the lower limbs.High-quality X-ray films are of great value for preoperative template measurement.

The magnification mark was affixed to the level of the patient's greater trochanter to confirm the magnification. JUST hip prosthesis electronic template, can adjust different magnification to meet different magnification of the X-ray film.

### Determination of length difference of lower extremities

The leg length was measured before operation, combined with X-ray analysis to make a clinical evaluation. This can also be used to measure the leg length during the operation.

In order to estimate the difference of lower limb length, draw a reference line at the bottom of the closed hole on the X-ray film.Measure the distance between the plane of the small rotor on both sides and the reference line. The difference between them is the difference of leg length on x-ray film.
The top of the greater trochanter can be used as another optional reference mark.

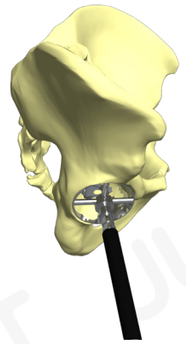
## Step 2　Femoral neck osteotomy

After exposure, the femoral head was removed.The osteotomy plane can be determined by osteotomy ulna combined with preoperative measurement.The osteotomy plane is determined by equaling the tip of the osteotomy ulna with the vertex of the greater trochanter, or referring to the lesser trochanter.Use an electric knife to mark the osteotomy line, use a pendulum saw to cut off the femoral head, or conservatively cut the osteotomy, and then use a platform file to repair the osteotomy surface.

After the osteotomy of the femoral neck, the femoral head after osteotomy was removed with a head extractor, and the maximum diameter of the femoral head was measured with a caliper to inform the operator for the size of the acetabular grinding file.



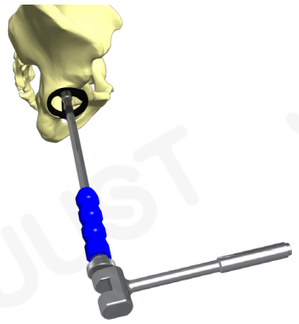
## Step 3　Grinding the acetabulum



Retractor was used to open the tissue, expose the acetabulum, clean the soft tissue and osteophyte in the acetabular fossa, remove the acetabular labial cartilage and expose the bony edge of the acetabulum.

After full exposure, the acetabulum is polished with an acetabular file (increasing from small to large) until the bleeding subchondral bone or cancellous bone is exposed, and all remaining soft tissue at the bottom of the acetabulum is scraped off. The final acetabular prosthesis size can be determined according to the final type of the acetabular file.

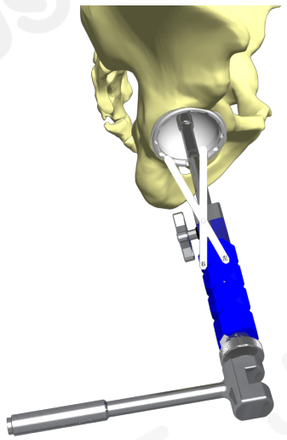
Note:
1.When grinding files, rinse the acetabulum repeatedly to determine the grinding degree and direction to ensure that the acetabulum is ground around.
2.The shaking of the acetabular file must be avoided when using the acetabular file, otherwise the acetabulum will be non-concentric and affect the effect of prosthesis fixation.



## Step 4　Insertion of acetabular test mould

Select the acetabular test mould of the same type as the last acetabular file, and tighten it to the acetabular test handle. After gently tapping the acetabular test mould, the test mould is in full contact with the acetabulum and is stable. At this time, the corresponding acetabular prosthesis can be selected according to the test mould type.

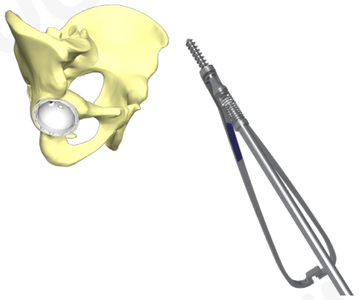
## Step 5　Insertion of acetabular cup



Select the same type of acetabular prosthesis as the test mould, insert the acetabular cup into the acetabulum, adjust the angle pointer to 45 degrees abduction and 15 degrees forward tilt, and insert the acetabular cup into the acetabulum with a sliding hammer until the acetabular cup is firmly in place (When the acetabular cup is in place, the tone and touch will change.), shake the implant rod by hand to test the stability of the prosthesis.

Remove the acetabular implant and check that the base of the acetabular cup fully fits the inner wall of the acetabulum through the hole at the top or the screw hole around it

Note:
1.When inserting the acetabular prosthesis, move gently to avoid fracture due to violence.
2.Judge the stability of the cup: shake the handle, there is no movement between the cup and the host bone, but the whole pelvis is moving, indicating that it is very stable.



### Step 6 Insertion of acetabular screws

In general, the initial mechanical stability can be achieved without screw insertion. For more auxiliary fixation, screw holes can be implanted with a soft drill guide, the length of the required acetabular screw can be determined with a sounding ruler, and the universal screwdriver can be screwed into the screw.

Note:
The screw head should be completely embedded in the nail hole of the mortar cup, otherwise it will affect the accurate insertion of the metal liner.

### Step 7 Insertion of metal liner test mould

Place the test mould into the cup with an inner liner inserter until the test mould touches the bottom of the acetabular cup.Visual inspection confirms that the edge of the metal liner test mould is parallel to the edge of the acetabular cup.

Note:
Please do not smash the test mould for metal liner to avoid deformation

### Step 8 Assembly and resetting of dual mobility liner test mould and femoral head test mould

Select the appropriate size of the dual mobility liner test mould and the femoral head test mould to carry out the test. Install the femoral head test mould on the dual mobility liner test mould.
Through the simple reduction of the test mould, the acetabular cup and the femoral stem, check the size and type to achieve the best match.
The femoral stem test neck is inserted into the femoral head test mould until the femoral head test mould is cocked out of the dual mobility liner test mould.



### Step 9 Insertion of metal liner

Place the metal liner into the acetabular cup with an inner liner inserter and visually confirm that the edge of the metal liner is parallel to the edge of the acetabular cup.

Connect the metal liner holder head to the acetabular test mould handle, and then insert the metal liner into the acetabular cup.

Note:
When inserted correctly, the edge of the metal lining is about 1-2mm higher than the edge of the acetabular cup, and the sucker of inner liner inserter cannot bring the metal liner out.

### Step 10 Insertion of dual mobility liner, femoral head, femoral stem

The dual mobility liner corresponding to the acetabular cup size is combined with the femoral head by using the lining indenter.

Place the femoral head on the base of the lining indenter and place the dual mobility liner on the femoral head.Then turn the T-shaped handle until the femoral head is completely locked with the dual mobility liner and can move freely.

The assembled femoral head and polyethylene lining are installed on the cone of the femoral stem, and then insert the femoral prosthesis into the metal liner.

## Parameter Table

### Anti-dislocation DM Acetabular System-Metal Liner

| REF | Size | Femoral Head Size |
|---|---|---|
| 803001 | 38 | 24 |
| 803002 | 40 | |
| 803003 | 42 | 28 |
| 803004 | 44 | |
| 803005 | 46 | |
| 803006 | 48 | |
| 803007 | 50 | |

### Anti-dislocation DM Acetabular System-Dual Mobility Liner

| REF | Size | Femoral Head Size |
|---|---|---|
| 803128 | 46 | 24 |
| 803129 | 48 | |
| 803135 | 50 | 28 |
| 803136 | 52 | |
| 803137 | 54 | |
| 803138 | 56 | |
| 803139 | 58 | |



## Dual Mobility Compatibility


| Acetabular Cup | Metal Liner | Dual Mobility Liner | Femoral Head |
|---|---|---|---|
| 46 | 38 | 46 | 24 |
| 48 | 40 | 48 | |
| 50 | 42 | 50 | 28 |
| 52 | 44 | 52 | |
| 54 | 46 | 54 | |
| 56 | 48 | 56 | |
| 58 | 50 | 58 | |

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